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A CLASS III CULTURAL RESOURCE INVENTORY OF A PORTION OF THE
UPPER SOURIS RIVER VALLEY, NORTH DAKOTA

FINAL REPORT

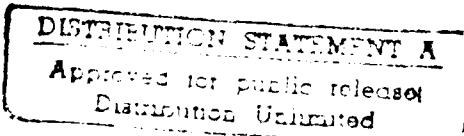
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Conducted for
St. Paul District
U. S. Army
Corps of Engineers
St. Paul, Minnesota

Conducted By
Cultural Research & Management, Inc.
Bismarck, North Dakota

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The U.S. Army Corps of Engineers, St Paul District proposes to establish a flood control project for the urban and rural reaches of the Souris River Valley in North Dakota. The overall project involves flood control features in both the United States and Saskatchewan, Canada. In May and June 1988, a Class III cultural resources inventory of the upper seven miles of the Souris River Valley in the United States. Thirty-nine cultural resource sites were discovered, recorded and evaluated. Nineteen of the sites are prehistoric sites which may be eligible for nomination to the National Register of Historic Places, but further test excavations are needed to determine their significance. One historic site contains a stone icehouse which is considered eligible for nomination to the National Register of Historic Places under Criterion C (1), as it embodies the distinctive characteristics of a method of construction. All other recorded sites are recommended not eligible for nomination to the National Register.

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ABSTRACT

The U.S. Army Corps of Engineers, St. Paul District proposes to establish a flood control project for the urban and rural reaches of the Souris River Valley in North Dakota. The overall project involves flood control features in both the United States and Saskatchewan, Canada. In May and June, 1988, Cultural Research & Management, Inc. conducted a Class III cultural resource inventory of the upper seven miles of the Souris River Valley in the United States. Thirty-nine cultural resource sites were discovered, recorded, and evaluated. Nineteen of the sites are prehistoric sites which may be eligible for nomination to the National Register of Historic Places, but further test excavations are needed at these sites to determine their significance under National Register Criterion D. One historic site (32RV438) contains a stone icehouse which is considered eligible for nomination to the National Register of Historic Places under Criterion C (1), as it embodies the distinctive characteristics of a method of construction. Definition of potential project impacts to this property and appropriate protection or mitigation of the building through HABS/HAER recording is recommended. All other recorded sites are recommended as not eligible for nomination to the National Register.

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INTRODUCTION

Project Description

The U.S. Army Corps of Engineers, St. Paul District is undertaking a flood control project for the urban and rural reaches of the Souris River Valley in North Dakota. The overall project involves flood control features in both the United States and Saskatchewan, Canada. Features in the United States include modification of the gated outlet structure at the existing Lake Darling Dam, mitigation of project-related impacts to U.S. Fish & Wildlife Service lands, mitigation of project-related impacts to farmsteads upstream and downstream of Lake Darling, and a water control plan for the safe release of water downstream. The project also includes flood control levees at Velva, and Sawyer, North Dakota, and channel modification at Minot. Features in Canada include the construction of two reservoirs for flood storage, the Alameda and Rafferty reservoirs, and the operation of a diversion between Rafferty reservoir and the United States/Canadian border.

The proposed flood control project would be constructed with funding provided by Congress through the U.S. Army Corps of Engineers. Federal funding of the project will entail compliance with appropriate federal laws and regulations which require identification and consideration of affects of the project to significant cultural resources. Especially applicable laws and regulations are the National Historic Preservation Act of 1966, the Archeological Resources Protection Act of 1974, Executive Order 11593, and the Code of Federal Regulations, Volume 36 Part 800. The present study was performed in compliance with these and other laws and regulations, to identify and evaluate cultural resources which might be affected by the project.

The area included in this Class III cultural inventory is a segment of the Souris River Valley approximately 7.5 miles in distance extending from the Canadian border in Section 28, T.164N., R.87W., southward to Section 36, T.163N., R.87W. The survey area is approximately 3000 acres, all of which is located in the valley floor. The proposed project would provide for a maximum flow of 4000 cfs through the Souris River, but, a land area large enough to pass 6000 cfs is included under this survey so as to allow some consistency in data collection along the entire length of the Souris River affected by the project.

In April, 1988, the U.S. Army Corps of Engineers, St. Paul District, contracted with Cultural Research & Management, Inc. to conduct a Class III cultural resources survey for the proposed flood control project. Preliminary background investigations and files search were completed in early May, 1988, and the field survey was completed in June, 1988. Geomorphological studies, which were not anticipated at the beginning of the project, were conducted in August and September, 1988.

Project Location and Environmental Setting

The project area lies within the Souris River Valley in Renville County, North Dakota. Cartographic depiction of the project area is depicted in Figures 1, 2, 3 and 4. Locations of recorded sites are presented on Figures 8 and 9 and on the project map located within the back cover flap of this report. Portions of the following legal sections are included in the project area.

T.163N., R.87W., Sections 3, 4, 10, 11, 14, 15, 22, 23, 25, 26, 35, and 36.

T.164N., R.87W., Sections 28, 33, and 34.

The environmental setting of the Souris River Basin has been discussed in detail by several authors over the last ten years (Good and Fox 1978, Syms 1980, Fox 1982, and Floodman and Friedman 1986). A compendium of this material is presented below.

The Souris River Basin represents an area of approximately 64,000 square kilometers. The portion of the Souris River Basin in North Dakota is referred to as the Souris Loop and comprises approximately 24,000 square kilometers. The Souris River enters North Dakota from Saskatchewan, Canada near the town of Sherwood and leaves the state near Westhope where it flows north to empty into the Assiniboine River in Manitoba, Canada. The river flows through four North Dakota counties: Renville, Ward, McHenry, and Bottineau.

The Souris River Basin lies in the Drift Prairie physiographic region of the Central Lowlands (Corps of Engineers 1978). Some controversy has occurred with the use of this term: Bluemle (1977) suggests the Central Lowlands refers to the vegetative regime rather than the geology of the region. Bluemle suggests that the Souris River lies in an area designated as the Glaciated Plains. This term is defined as being a region of glacial deposits which extend northward from the Missouri escarpment to the Pembina escarpment. Elevations for the area of this region range from 1600 feet (487 m) to 1800 feet (549 m) above mean sea level. The Souris River Basin is divided into four major topographic features: the Missouri Escarpment, the ground-moraine plain, the bed of glacial Lake Souris, and the southwest portion of the Turtle Mountains (Floodman and Friedman 1986).

The Missouri Couteau occupies a 30-50 mile wide strip on the westernmost edge of the Central Lowlands. This couteau lies approximately 400 feet (122 m) above the ground-moraine plain (Floodman and Friedman 1986). Separating these two areas is the Missouri Escarpment which gently slopes from the higher elevation of the Missouri Couteau to the ground-moraine plain (Corp of Engineers 1978).

The ground-moraine plain extends from the base of the Missouri Escarpment to the ancient bed of glacial Lake Souris. The ground-moraine plain contains elongated ridges, hills, and low undrained depressions (Floodman and Friedman 1986). The current project is located along the Upper Souris Loop, which is dominated by ground-moraine plain

Figure 1. General project Vicinity.

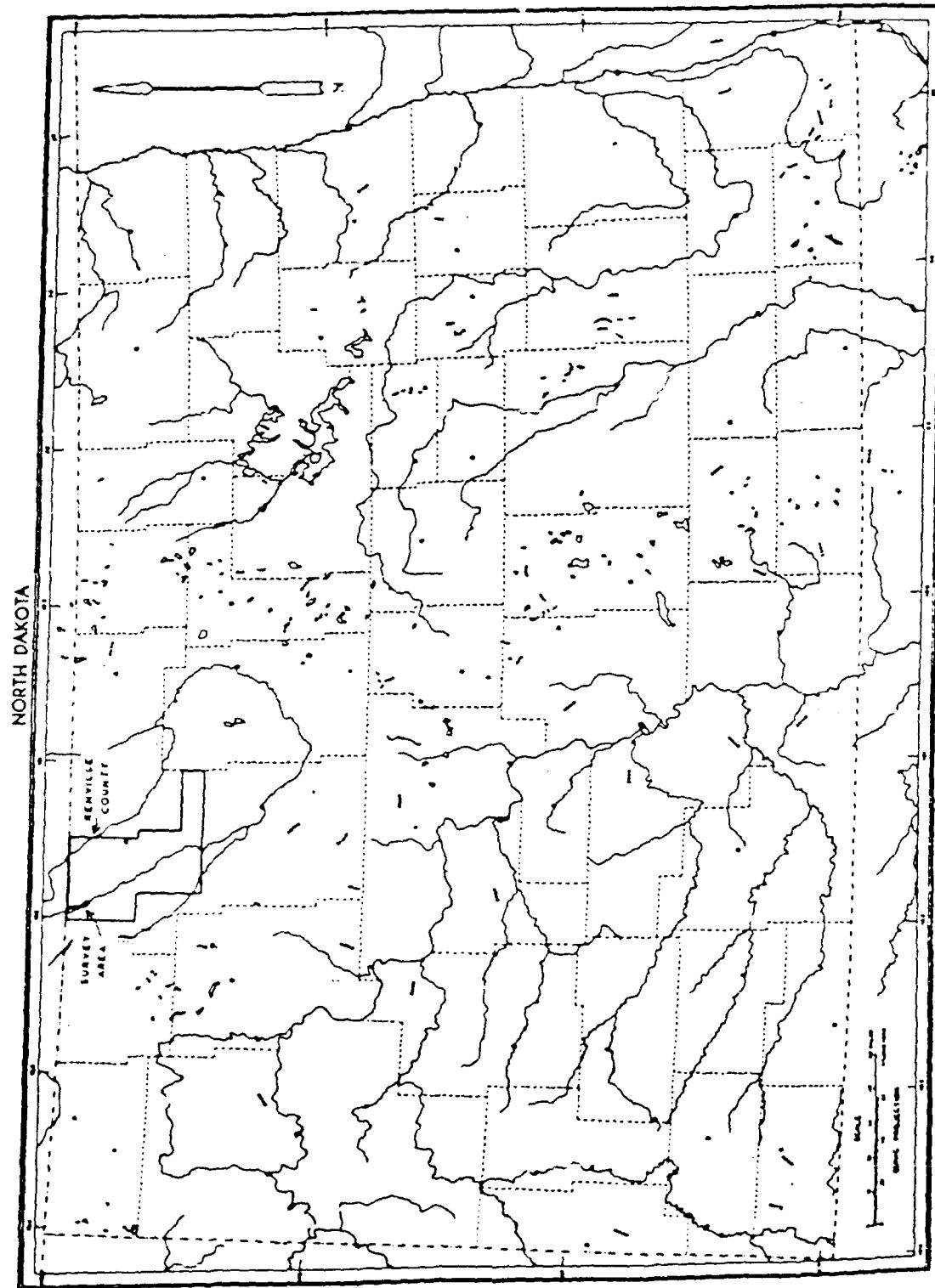
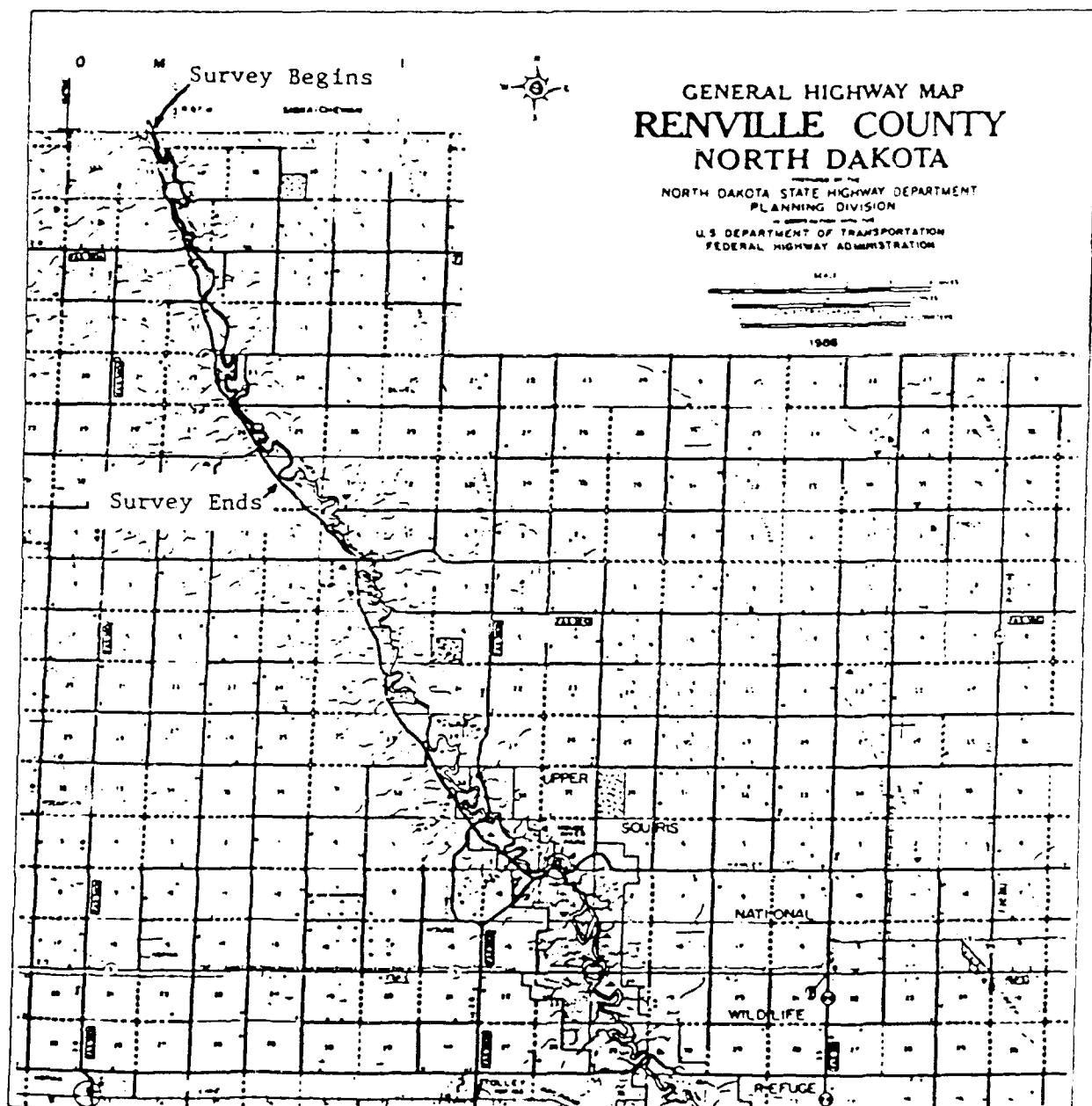


Figure 2. Project Area Map.



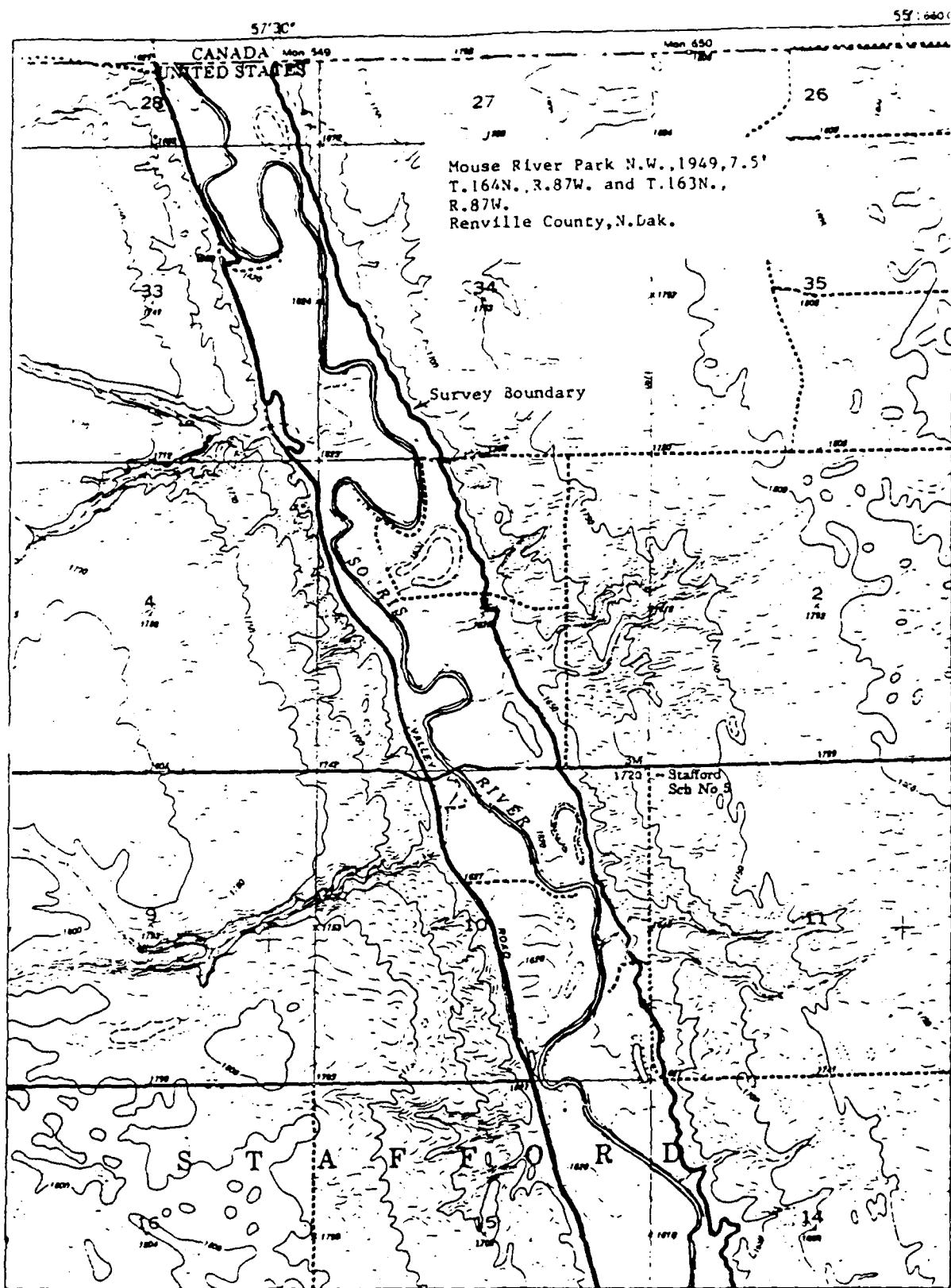


Figure 3. Topographic Map of the Project Area.

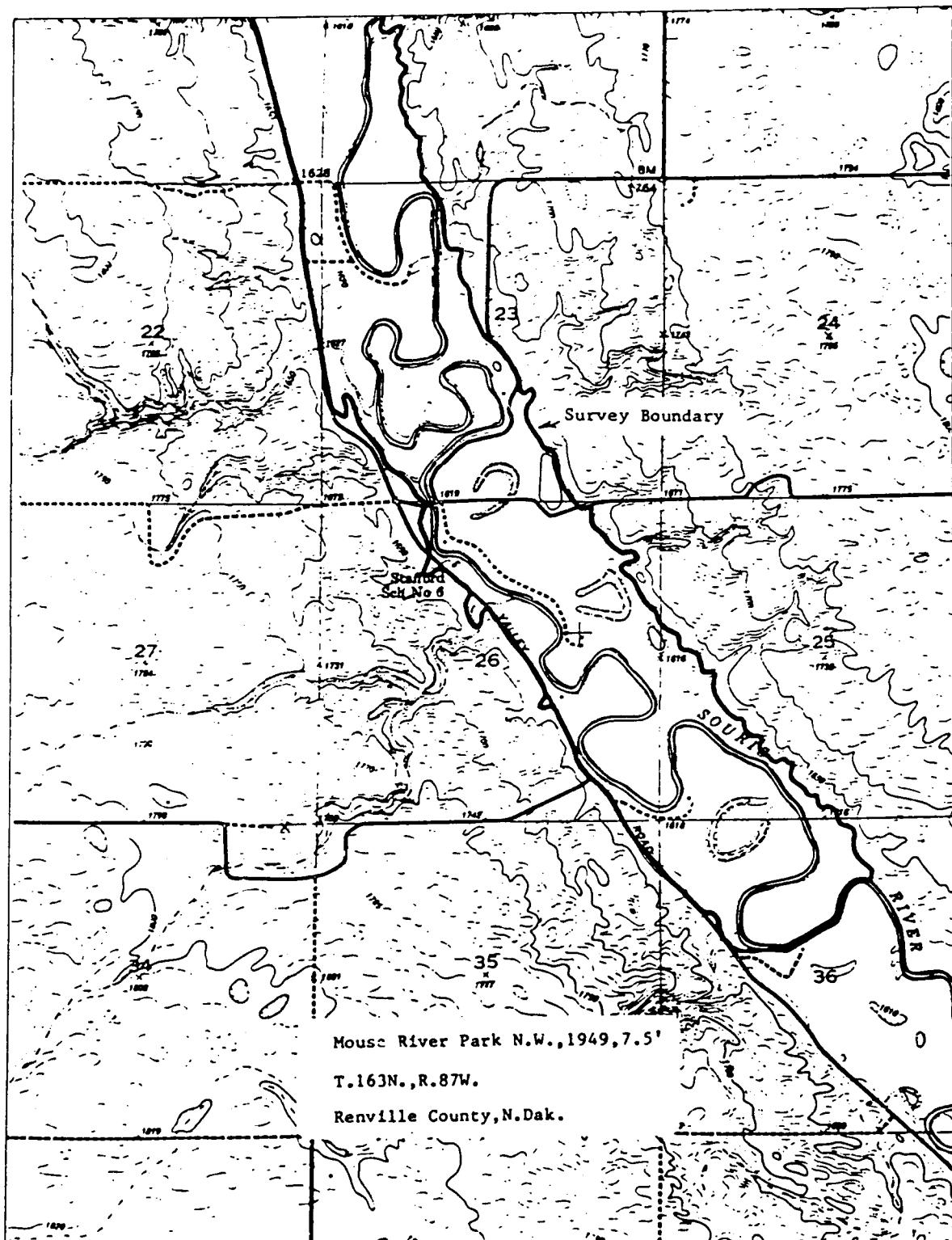


Figure 4. Topographic Map of the Project Area.

topography. The valley was formed by glacial melt water action which subsequently abraded the area to below its present level. The Souris River Valley is steep-sided and the valley floor is 100 to 200 feet (30-60 m) below the ground-moraine plain because of this glacial action. The valley floor forms a relatively flat surface with the river channel winding through it. Numerous old meander scars, oxbows, and alluvial fans are present (Lemke 1960; Corps of Engineers 1978).

The Souris River Valley lies within the geological feature known as the Williston Basin. This basin occupies the western two-thirds of North Dakota as well as portions of South Dakota, Montana and the Canadian provinces of Saskatchewan and Manitoba. The basin is a structural and sedimentary formation which was shaped during Cretaceous times. The basin is interrupted by many small geologic structures. Folds in the sedimentary rocks formed fault lines and anticlines, such as the oil-producing Nesson anticline in northwestern North Dakota (Bluemle 1977).

The geological structures in North Dakota consist of two types of sedimentary deposits: bedrock and glacial sediment (Bluemle 1977). The bedrock deposits consist of Sentinel Butte, Tongue River, and Cannonball Formations from the Fort Union Group of the Tertiary System. Additional deposits occur from the Hell Creek and Fox Hills Formations of the Cretaceous System (Corps of Engineers 1978).

Surface deposits in the Souris River Valley consist of unconsolidated Pleistocene glacial deposits or alluvium. The alluvium is found almost exclusively along the river bottoms and consists of clays, sands, silts, and some gravels (Lemke 1960; Corps of Engineers 1978). The glacial materials consist of ground-moraine and sediments from the ancient Lake Souris bed. Ground-moraine deposits are composed of stony clay till with thin lenses of sand and gravel which were deposited at the base of a glacier as it receded (Bluemle 1977). Within the river valley these glacial tills measure 15 m to 90 m (50-300 ft) in thickness.

The surface soils of the project area are the black soils of the subhumid grasslands composed of the Barnes Association. This soil association consists of loams and clay loams which are nearly level to gently rolling soils with a thick black surface layer (Chernozem) and associated soils with very limy subsoil (Calcium Carbonate Solonchak). These soils may also have a claypan subsoil (Solonetz) or wet soils (Humic Gley and Planosol). Cropland is the principle use for these soils, but intermittent ponding sometimes hinders farming operations and is the main limitation in the area (Omodt et al. 1968).

The surface and subsurface soils of the project area and their archeological associations are further discussed in the geomorphological section of this report.

The climate in the Souris River basin is a northern continental one characterized by extremes of temperature variation. Winters are long and cold, and growing seasons are short with erratic precipitation. The mean annual temperature is 39 degrees F. Temperatures have ranged as low as -54 degrees F. and as high as 114 degrees F. Annual

precipitation averages 15.5 inches. Northwesterly winds prevail during winter months and change to southerly winds during the summer (Corps of Engineers 1978). The climate is favorable for growth of tall grasses and hardwood forests (Good and Fox 1978).

The Souris Valley has offered relatively abundant and dependable fresh surface water, seasonal shelter, game, wood, and wild fruit throughout the post-Pleistocene period. The flora and fauna of the Souris River valley have been discussed and described in detail by a number of researchers (Kuchler 1964; Lautenschlager 1964; Burgess et al. 1973; Corps of Engineers 1978; Good and Fox 1978; Syms 1980; Floodman and Friedman 1986). These studies aptly present this information, and the reader is directed to these sources for a more complete and particular appraisal of natural resources in the vicinity of the present project than is incorporated above and below.

Good and Fox (1978) identified a set of six ecozones for the Souris Valley, which were defined on the basis of integrated flora and faunal species. These ecozones supposedly are associated with particular types of archaeological sites. Good and Fox suggest that particular types of sites can be predicted for each of the ecozones because certain cultural groups would have exploited the "unique" flora and fauna of these areas. Syms (1980) also postulated a series of five ecozones for the portion of the Souris River in Canada. A primary difference between the two studies is that Syms did not try to anticipate the types of sites found in a particular ecozone, but used ecozone information for examining the distribution of sites in relation to their distance from the river.

The current project area is within the Northern Floodplain Forest as described by Good and Fox (1978) and in the Floodplain A and Floodplain B ecozones as described by Syms (1980). Good and Fox (1978) suggest a division of archaeological sites based on their cultural affiliation and their ecological distribution, i.e., ceramic sites located along the floodplains and non-ceramic sites located along the terraces. Syms' (1980) report on the Nash survey suggests this pattern does not exist on the Upper Souris River valley. Of 131 sites located on the Nash survey, 74% were found on the upper terraces while only 26% were found along the floodplains. Of the ceramic sites located, 58% were located on the terraces and 42% were located on the floodplains. This indicates the terrace areas were utilized as readily as the floodplains by village peoples. The present study tends to support the distributional taxonomy of sites presented in the Syms (1980) report.

CULTURAL CONTEXT

The following cultural contexts are intended to outline the chronology and major themes of prehistory and history in the general vicinity of the proposed project. The prehistory of the area is not well known, in part because little broad-scale archaeological work has been done there. Much of the understanding of the prehistory is drawn by inference from surrounding areas. The history of the area is somewhat better known because the area was important in the early fur trade period.

Prehistory

The project area is within a general archaeological region known as the Northeast Plains, which is defined by inter-related characteristics of environmental history and human adaptations and utilization of available materials and food sources (Gregg 1985). The general region is thought to share broad traditions and cultures throughout prehistory. For the purposes of this report, the prehistory and early history of the study area will be divided into four temporal periods, each of which will be subdivided into several cultural traditions. This scheme was developed for the Northern Plains by Mulloy (1958) and Reeves (1970) and adapted to the Souris River Basin by Floodman and Friedman (1986).

The Early Prehistoric Period (9500-5500 B.C.) is comprised of the Paleo-Indian Tradition which is characterized by the use of large fluted and unfluted spear points. The Middle Prehistoric Period (5500 B.C.-A.D. 700) consists of the Archaic Tradition, which partially overlaps the Early and Middle stages of the Plains Woodland Tradition. This period is basically characterized by the use of atlatl aided dart points, however, the bow and arrow had been developed and was probably introduced into the study area at the extreme latter portion of this period. The Late Prehistoric Period (A.D. 700-1740) is made up of the Late Stage of the Plains Woodland Tradition and the Plains Village Tradition and is generally characterized by the use of small notched and unnotched arrow points. The Early Historic Period (A.D. 1740 to 1820) consists of the Disorganized and Post-Contact Coalescent Variants of the Plains Village tradition, the Equestrian Nomadic Tradition, and named historic Indian tribes. This period is characterized by presence of Euro-American trade items including glass beads, metal cooking and storage vessels, metal projectile points, and use of horses.

The following sections will briefly detail each of the temporal periods with descriptions of the various cultural traditions and complexes present or potentially present within the Souris River Basin and surrounding areas. Diagnostic artifacts collected during this project are fit into a temporal and cultural framework which illustrates the spacial relationships between these manifestations and named complexes on the Northern Plains.

Early Prehistoric Period
(9500-5500 B.C.)

Paleo-Indian Tradition

Paleo-Indian occupations are dated ca. 9500-5500 B.C. on the Northern Plains. The tentative, initial date corresponds with the first human occupation of the area. The Paleo-Indian tradition is characterized by a variety of hunting and gathering adaptive strategies, each with a strong focus on big game (Gregg 1985:81). Using Jennings's (1968) model, the Paleo-Indian transition is divided into the Clovis, Folsom, and Plano complexes.

The Clovis complex is defined on the basis of the fluted Clovis projectile point type and associated material remains and is dated ca. 9500-9000 B.C. (Haynes 1966:107). Clovis people subsisted mainly on the flesh of large, terminal Pleistocene fauna, most notably mammoths but also bison, horses, and camels (Gregg 1985:85). Smaller game including jackrabbits, coyotes, prairie dogs, and even snails, mussels and hackberry seeds were consumed by at least portions of this group (Gregg 1985:85).

The exact methods employed in procuring megafauna such as mammoths can only be speculated. Favorite stalking grounds "seem to have been shallow lakes and swamps" (Willey 1966:112). Small groups of mammoths may have also been trapped in broken terrain or at slippery stream crossings by experienced hunters armed with spears tipped with Clovis points (Brown et al. 1982:63). Exploiting the resources may have involved some scavenging in addition to hunting (Saunders 1979:10).

The archeological record from this complex is scant, but it is presently hypothesized that the socio-political organization of these people may have taken the form of bilateral/bilocal bands (Gregg 1985:56). Based on the findings at the Holcomb site in Michigan, Fitting (1970:47,56) suggests that the typical Holcomb band with a Clovis material culture numbered 30-60 individuals.

Clovis burial practices are represented at the Anzick site in western Montana, where human remains and funeral offerings were placed in a small rock shelter. "The burial assemblage contained the red ochre-covered remains of two sub-adults and over 100 stone and bone artifacts" (Lahren and Bonnichsen 1974:148).

An examination of the current archaeological literature failed to reveal the presence of Clovis finds within the Souris River Basin. Evidence of the Clovis complex is present in the surface collection from the Moe site, 32MN101, on the west bank of Lake Sakakawea on the Missouri River (Schneider 1975). The Moe site is located approximately 75 miles southwest of the survey area. A single Clovis point was found in southern Manitoba near the community of Mentmore (Pettipas 1970), about 150 miles northeast of the study area. One other Clovis point has also reportedly been recovered from site 32PB25 in the Pembina River Valley near Wahalla, N.D., about 190 miles due east of the survey area (Brown et al. 1982:66).

The Folsom complex is defined on the basis of Folsom and Midland projectile point types and other related cultural remains. This complex is currently dated at ca. 9000-8000 B.C. (Haynes 1966:107) and is generally considered to be a development out of the Clovis complex (Judge 1973:69). Folsom people did not hunt mammoths because these animals were then extinct, which may have been caused by climatic changes and/or their over-exploitation by humans. Hunters now employed mass killing techniques (traps and jumps) to obtain a large, extinct form of bison, (Bison antiquus), which they supplemented with smaller game and plants (Gregg 1985a:89).

Based on current archeological evidence, Wilmsen (1974:110-113) hypothesized that Folsom people resided in small bands consisting of 15-20 individuals per camp. Wilmsen (1974:119) continues to speculate that Folsom bands were widely dispersed, yet linked by some mechanism which involved circulating exotic stone material.

The closest find of a fluted Folsom point to the study area is probably a surface find from near Melita, Manitoba, which is located on the Souris River about 50 miles northeast of the survey area (Pettipas 1970). Another surface-collected Folsom point was found in the Souris River Basin near the southeastern Saskatchewan community of Bromhead, which is about 80 miles west and slightly north of the present survey area. The previously mentioned Moe site (32MN101), located along Lake Sakakawea about 75 miles southwest of the study area, also produced surface evidence of the Folsom complex (Schneider 1975). A Folsom point was also found just north of the source of the Pembina River near Boissevain, Manitoba, about 90 miles northeast of the project area.

The Plano complex is represented by a number of projectile point types which are tentatively dated between 9000 to 5500 B.C. As with the preceding Folsom complex, Plano people subsisted on the flesh of extinct forms of bison (Bison antiquus and Bison occidentalis) which they supplemented with smaller game and wild plants (Gregg 1985a:90-99). Kill strategies often involved mass diversions utilizing natural features such as arroyos (Wheat 1972), ponds (Sellards et al. 1947), and parabolic sand dunes (Frison 1978). "Campsite and game watches were situated on well-drained knolls, dunes, ridges, rockshelters and terraces located a short distance from a water supply" (Wendorf and Hester 1962:166).

The Nash survey in the Souris Valley in Canada resulted in the finding of two Plano complex projectile points in the Souris River Basin near Melita, Manitoba (Syms 1980). One specimen consisted of the base of an Agate Basin or Hell Gap point, and the other was the mid-section of a large lanceolate point. Both of these points (one of which was privately collected) were found on the surface in the uplands above the river (Syms 1980). The previously mentioned Moe site (32MN101) produced surface evidence of Hell Gap, Agate Basin, Cody Complex, and Plainview type projectile points. An Alberta point was found near the Manitoba community of Ninette on the shore of Pelican Lake (Pettipas 1970). This lake, which feeds the Pembina River, is located approximately 110 miles northeast of the survey area. A finely worked, lanceolate-shaped point with a broken base is included in the Emmel collection (Appendix B). This point was found on the upland terraces

immediately west of the survey area and may represent the Paleo-Indian tradition (Emmel 1988).

Middle Prehistoric Period
(5500 B.C.-A.D. 700)

Plains Archaic Tradition

The Plains Archaic tradition is presently best viewed as a period of transition from the Paleo-Indian tradition (Gregg 1985:100). The transition from Pleistocene to essentially modern fauna and flora occurred earlier in the southern plains than in the northern plains. However, the majority of the Pleistocene megafauna living in herds became extinct about 8000 years ago (Hester 1960:66). These extinctions, coupled with the emergence of modern climatic and vegetation patterns, contributed to a shift toward reliance on smaller game and vegetal food stuffs. In addition to modern bison (*Bison bison*), the smaller game included deer, antelope, rabbits, birds, reptiles and mussels. The high incidence of grinding stones and fire-cracked rock probably represent roasting pits, which are indicators of an increased reliance on floral materials to supplement meat diets.

Chipped stone artifacts of the Plains Archaic tradition are generally less well made than those of the Paleo-Indian tradition. The Plains Archaic tradition stone tool kit consisted of projectile points, knives and scrapers. Pecked and ground stone axes, milling stones, and atlatl weights were commonly used during the Plains Archaic tradition, along with bone needles, awls, tubes, fishhooks, and shell beads.

Like those of the Paleo-Indian tradition, occupation areas of the Plains Archaic tradition were small encampments. Some locations show a steady occupation, while others appear to have had seasonal intermittent occupations. Stone circles first appeared on the northern plains during the early Plains Archaic tradition (Quigg and Brumley 1982:149).

At least five named Plains Archaic complexes are known to have existed within the Northeast Plains region. Each complex will be briefly described below along with geographic relationships of known manifestations of each complex to the present study area.

The Logan Creek/Mummy Cave (5500-3300 B.C.) complex is characterized by the first appearance of large side-notched projectile points and a subsistence pattern centered on the exploitation of near-modern and modern species of bison. There was also a greater dependence on smaller game and plant gathering (Gregg 1985:102). At least some of the bands included in this group inhabited camps which are archaeologically represented as stone circles (Quigg and Brumley 1982:148).

The Nash survey revealed the presence of three large side or corner-notched projectile points classified as "pre-Oxbow" in age (Syme 1980:364-366). These points (one of which was privately collected) were found on the surface within the Souris River Basin near Melita, Manitoba. An early side-notched projectile point was recently discovered during the survey of the proposed Rafferty Dam near Estevan,

Saskatchewan, within the Souris River Basin and within 50 miles northwest of the project area (Finnigan 1986:41). Large side-notched projectile points have been found in excavated contexts at the Tysver-Olsen site (Kuehn 1984) and at site 32BI249 (Simon 1982). Both sites are in the Little Missouri River drainage area of western North Dakota and within 150 miles of the present survey. Four large side-notched projectile points are included in the Emmel collection (Appendix B). These points were found on the upland terraces immediately west of the survey area (Emmel 1988) and may be pre-Oxbow in age.

People of the Oxbow complex (3500-1000 B.C.) exploited fully modern bison (Bison bison) which they supplemented with smaller game and plant foods. Reeves (1970) believes that the Oxbow complex probably developed out of the Mummy Cave complex between 5500-3000 B.C. The Oxbow complex is characterized by a distinctive projectile point type (Dyck 1977:72-86). The Oxbow complex is the earliest named unit in the northern plains associated with significant numbers of archeologically recovered human remains (Gregg 1985:107). An extensive cemetery at the Gray site in southeastern Saskatchewan is thought to be a traditional burial ground. It contains an estimated 500 individuals (Millar 1978).

An Oxbow projectile point was found on the surface of 32RV3 (Floodman and Friedman 1986:521) which is located in the Souris River Valley approximately six miles south of the survey area. The name site for the Oxbow complex is located within the Souris River Basin in southeastern Saskatchewan approximately 15 miles northeast of the study area (Nero and McCorquodale 1958). Another site which produced Oxbow points in a subsurface context was the Long Creek site (Wettlaufer and Mayer-Oakes 1960), which is located on a tributary of the Souris River within 50 miles of the present survey. Syms (1980) reported the presence of six Oxbow points from four surface sites in the Souris River Basin in the Melita area of southwestern Manitoba. All these sites were located during the Nash survey and are found within 50 miles of the study area. The Emmel collection includes a number of Oxbow and Oxbow-like points (Appendix B). These points were found on the surface of the upland terraces immediately west of the survey area (Emmel 1988). The Cherry Point site located along the shore of Oak Lake represents a stratified Archaic age site which includes Oxbow type points (Haug 1976). Oak Lake is situated between the Assiniboine and Souris River systems in southeastern Manitoba and is approximately 75 miles northeast of the project area. The frequently mentioned Moe site, located on Lake Sakakawea, yielded surface indications of an Oxbow complex occupation (Schneider 1975).

The widespread McKean complex presence (3000-600 B.C.) on the northern plains has been described as "explosive" (Wormington and Forbis 1965:190). This presence correlates with the essentially modern sub-boreal climatic episode characterized as cool and moist in contrast with the preceding warm and dry Atlantic episode (Gregg 1985a:111). Syms (1969:169) suggests McKean groups may have "lived much of the year in small groups and combined into larger groups during the summer for buffalo hunts".

This complex is represented by the McKean lanceolate point type and the stemmed Duncan and Hanna point types. A Hanna-like projectile point was recovered from the surface of site 32RV7 (Floodman and Friedman 1986). This site is located approximately three miles south of the survey area within the Souris River Valley. A McKean lanceolate point was collected from the surface of site 32WD404 (Good and Fox 1978). This site is situated along the Souris River within 25 miles south of the present study area.

Numerous manifestations of the McKean complex have been excavated and surface collected from sites within the Souris River Basin in southern Canada. Syms (1980) reports the recovery of a McKean point and a Duncan type point from two separate sites in the Melita area of southwestern Manitoba. A projectile point assigned to the Duncan type was collected from a site in the proposed Rafferty Dam area of southeastern Saskatchewan (Finnigan 1986). Representative projectile points from the McKean complex have been found in subsurface contexts at the Cherry Point site along the shore of Oak Lake in southwestern Manitoba (Haug 1976).

The Emmel collection contains over a dozen projectile points assignable to the McKean complex. This collection was obtained from various surface localities along the upland terraces immediately west of the project area. It includes McKean lanceolate points, Duncan points, and Hanna points (Appendix BA).

Pelican Lake complex dates tentatively from 1500 B.C. to A.D. 250 and apparently represents considerable refinement of the communal bison hunting technique developed earlier (Gregg 1985a:113. Beckes and Keyser 1983:185). Joyes (1970) believes that, at least in some parts of the plains, Pelican Lake was indigenous, growing out of the McKean complex. Other authors see a more distant cultural break (Frison 1978). The Pelican Lake complex is most commonly represented by large corner notched projectile points, but on rare occasions large unnotched points have been associated with it (Reeves 1970). Campsites associated with the Pelican Lake complex are not extensive but rather suggest occupation by small groups (Good, et al. 1980:27). Joyes (1970) feels that these nomadic bands probably coalesced into large groups for seasonal bison hunts. There is evidence associating some people of the Pelican Lake complex with habitation in tipi or tipi-like structures (Reeves 1970).

The surface collection of site 32RV202, during the current survey, produced one projectile point assignable to the Pelican Lake Complex. A Pelican Lake point was also recovered from the Curtis Ones site (32RV29) (Floodman and Friedman 1986:521), which is located approximately ten miles south of the current project area. Manifestations of the Pelican Lake complex have also been found in the Souris River Basin in southern Canada. Three projectile points identified as Pelican Lake points were discovered at two separate sites near Melita, Manitoba (Syms 1980). These sites are within 50 miles northeast of the study area. A single Pelican Lake projectile point was recovered near Estevan, Saskatchewan (Finnigan 1986), which is located 50 miles northwest of the project area. Pelican Lake points were also discovered in a subsurface context at the Long Creek site (Wettlaufer

1960), on a tributary of the Souris River near Estevan, Saskatchewan.

Plains Woodland Tradition

For the purpose of this report we will follow Gregg and Davidson's (1985:117) lead and use the Plains Woodland tradition "to classify and temporally order named archeological units characterized by the regular use of ceramic vessels and/or mound burial ceremonialism". The presence of exotic raw materials such as marine shell and copper is also an important Plains Woodland characteristic (Snortland-Coles 1988:2.4). In eastern North America, the Woodland tradition is divided into the Early Woodland (1000-100 B.C.); Middle Woodland (300 B.C.-A.D. 700), and Late Woodland (A.D. 600-1800) (Syms 1976:205-213), but these dates differ on the Northern Plains (Snortland-Coles 1988:2.3). Suggested dates for the Plains Woodland tradition in this area are: Early Plains Woodland, 700-100 B.C.; Middle Plains Woodland, 100 B.C.-A.D. 600; and Late Plains Woodland, A.D. 600-1800. Review of the present archeological record indicates the presence of at least nine named Plains Woodland complexes or cultures within or near the Souris River Basin. The Besant, Sonota and Laurel complexes are associated with the Middle Plains Woodland period in North Dakota (Snortland-Coles 1988:2.4). The Valley and Avonlea complexes will also be briefly discussed. The Arville, Blackduck and Devils Lake-Sourisford complexes and the Wanikan culture are associated with the Late Woodland period. Each of these complexes will be briefly described below in terms of its geographic proximity to the current study area.

The only documented evidence of an Early Plains Woodland occupation of North Dakota was found at the Naze site, which is situated along the James River valley about 225 miles southeast of the survey area (Gregg 1987a). A burned daubed lodge structure dating 550-410 B.C. was found in association with corner-notched projectile points and ceramic sherds was exposed at the site (Gregg 1987). The associated pottery is similar to Fox Lake Trailed ceramics which appeared in southwestern Minnesota around 200 B.C. (Gregg:1987a).

Middle Plains Woodland

Prior to 1975 the Besant complex was conceptualized as incorporating components which were later assigned to the Sonota complex by Neuman (1975). Gregg and Davidson (1985:118) suggests a temporal range of 100 B.C. to A.D.750 for the Besant complex based partially on recent archeological finds in the James River Valley of North Dakota.

The source of the Besant complex is a matter of great controversy. Davis and Stallcopp (1966) believe it to be an indigenous development out of the preceding Pelican Lake complex. Reeves (1970) believes it to be a separate plains-adapted cultural tradition which had been resident in the Northeastern Plains since Late Archaic to Early Woodland times. Husted and Mallery (1967) see its emergence from the boreal forest of the north.

Besant is characterized by a distinct projectile point type, and it is the earliest named archeological unit with ceramics in North

Dakota. Besant phase campsites appear to represent fairly lengthy or repeated occupations compared to Pelican Lake occupation by fairly small groups (Joyes 1970:212). Gregg and Davidson (1985:119) notes, however, that small and large tipi ring camps and other habitation types have been associated with Besant peoples. They were predominantly bison hunters who also consumed small game, fish and wild plants. Frison (1978:223) describes the Besant on the northwestern plains as "displaying the most sophisticated bison procurement methods" in that subarea's prehistory. A very important development which occurred during Besant times was the transition from the atlatl dart point to the arrow point. The arrow point appears as early as A.D. 450 in Besant components, and arrow points were predominate in the terminal Besant culture (Reeves 1970). Whether the Besant people actually developed the arrow point is a matter of debate, however.

Two Besant projectile points were recovered from sites 32RV201 and 32RV202 within the current survey area. Numerous localities in the southern Canadian Souris River Basin have also produced Besant type projectile points within 50 miles of the project area. The Nash survey conducted in the vicinity of Melita, Manitoba yielded 11 Besant and three Besant-like projectile points from seven different locations (Syms 1980). Two Besant points were found during the Rafferty Dam survey near Estevan, Saskatchewan (Finnigan 1986). Evidence of a Besant occupation was found in a subsurface context at the Long Creek site on a tributary of the Souris River in southeastern Saskatchewan (Wettlaufer 1960).

Two additional sites assigned to the Besant complex (Gregg and Davidson 1985) lie on or near the Souris River in the vicinity of Towner, N.D. The artifacts from these sites (Buffalo Lodge Lake and Towner) consist primarily of cord-roughened pottery which was described by Wood (1962). Both sites are within 75 miles of the survey area.

The Sonota complex was defined by Neuman on the basis of a comparative study of five sites along the Missouri River in southern North Dakota and northern South Dakota. Neuman also defined the Baldhill Mound site near Valley City, North Dakota as a Sonota complex site. "Sonota burial mounds offset the complex from other known Besant sites" (Neuman 1975:93). Neuman (1975:83) estimated the date range for Sonota as A.D. 1 to A.D. 600. Some of the assemblages assigned to the Sonota complex by Neuman contained small side-notched and triangular projectile points (Snortland-Coles 1983). This suggests that the terminal date for this complex could be later than A.D. 600. Reported Sonota conical mounds range from 16.8 to 27.4 meters in diameter and .39 to 1.7 meters in height (Neuman 1975). Grave offerings have seldom been found to be abundant within excavated mortuary mounds (Neuman 1975). The most common feature of the complex appears to be bone uprights placed in the occupation site post holes and the association of bison crania or complete bison skeletons in the central burial chambers (Neuman 1975).

Five projectile points collected from four sites near Melita, Manitoba were classified as representing the Sonota complex (Syms 1980). Syms (1977:89) assigned a series of sites in the Killarney vicinity of south-central Manitoba to the Sonota complex. These sites

include the excavated Richard Kill and Richards Village sites, which are found in the Pembina River basin approximately 100 miles northeast of the current study area.

The core area for the Laurel complex is in northern Minnesota, and the complex has strong Great Lakes affinities to complexes such as Point Peninsula (Stoltman 1973). Syms (1977:3) suggests an overall Laurel date range of 100 B.C. to A.D. 1100. People of the Laurel complex were hunters and gatherers predominately found in a woodland environment, who also exploited the prairie environment for specific resources, including bison (Gregg and Davidson 1985:125). People of the Laurel complex were apparent participants in the well known Hopewell Interaction Sphere, a far-flung social and trade system represented archeologically by the presence of copper artifacts, platform pipes, and obsidian artifacts (Beckes and Keyser 1983:135).

The Laurel complex is characterized by a distinctive ceramic industry and secondary burials covered by mounds (Gregg 1983:124). In Manitoba, Laurel complex occupations tend to be characterized by accretional mounds lacking central burial chambers (Syms 1977).

Laurel sites in Manitoba are confined primarily to the southern boreal forest (Syms 1977). The Avery, Montroy, and Paddock sites all contain Laurel complex ceramics (Syms 1977). These sites are located along the aspen parkland of the Pembina River Basin of south-central Manitoba within 150 miles northeast of the survey area. Laurel pottery was also found at the Riverview II site in southwest Manitoba (Syms 1977).

Laurel or Laurel-like manifestations have recently been discovered in North Dakota. These include the Beeber site, located on the James River north of Lamoure (Snortland-Coles 1988:26), some of the mounds within the Fordville-Blasky Mound site above the Forest River near Fordville (Vehik 1981), and the nearby Inkster Mounds (Beckes and Keyser 1983:135). All these sites are located within 230 miles of the survey area.

The Valley complex is identified on the basis of particular types of pottery. The vessels are subconoidal in shape, have a surface treatment of vertical or spiral cord-roughening, with a distinctive bulge at or near the mid-point of the vessel (Syms 1977:88). Sites with Valley Cord-roughened pottery are distributed widely on the Plains. Sites with this pottery type are known for an area from the Kansas border, north through Nebraska, and along the Missouri River valley north through southeastern South Dakota and northwest North Dakota, to as far west as Havre, Montana (Neuman 1975:84). The known range of this complex has been extended into southwestern Manitoba on the basis of a reconstructed Valley Cord-roughened vessel found near the Moore Group mounds (Syms 1971, 1977, 1980). The Moore Group mounds are located in the Souris River basin a short distance north of the U.S.-Canadian border, approximately 40 miles northeast of the survey area. Syms (1977:89) suggests a tentative temporal range of 100 B.C.-A.D. 900 for the Valley complex.

The Avonlea complex has initial dates of A.D. 90 + 120 at the Head-Smashed-In site in Alberta (Reeves 1970) and A.D. 210 + 60 at the Gull Lake site in southwestern Saskatchewan (Kehoe 1966). Reeves (1970) suggests an initial date of A.D. 400-500 for the Avonlea complex in the Upper Missouri-Black Hills and southwestern Manitoba areas, with a termination date of A.D. 650-700 in southwestern Manitoba but as late as A.D. 900 in the Upper Missouri-Black Hills areas. These dates indicate that the Besant and Avonlea complexes were at least partially contemporary.

The Avonlea complex is represented by small, delicate projectile points. First appearing as corner-notched points at such sites as Head-Smashed-In in Alberta (Reeves 1970), they were apparently soon replaced by the much more numerous and familiar Avonlea side-notched points (Kehoe 1966). The points from this complex are associated entirely with the bow and arrow. A gradual transition from atlatl and dart to bow and arrow is not represented by Avonlea point typologies, which may suggest that this transition was very rapid on the Plains, or that it took place elsewhere (Reeves 1970). It is possible that the people of the Besant culture had the bow and arrow introduced to them by the makers of Avonlea points (Reeves 1970).

The origin of the Avonlea complex is speculative at this time. Kehoe (1966) suggests the Avonlea complex may have been associated with the caribou-driving Athabascans to the north, whereas Husted and Mallory (1967) favor its affiliation with peoples of the Middle Missouri region. Reeves (1970) suggests that the Avonlea complex is a Plains adapted culture subsequent to the Pelican Lake complex.

The Long Creek site in southeastern Saskatchewan yielded ceramics from the Avonlea stratigraphic level (Wettlaufer 1960:68). This site is within 50 miles northwest of the project area. The exterior surface treatment of the sherds is cord-marked or smoothed over cord-marked. Decorations includes net-impressions, large punctates, and small oblique cord-wrapped rod impressions on the lip (Wettlaufer 1960:38-39). Ceramics were also found in association with Avonlea projectile points at the Evans site near New Town, N.D., which is 65 miles southwest of the current survey area (Schneider and Kinney 1978:6-10). The rim sherds from this component are vertical and thickened with flat lips. The exterior surface treatments include cord-roughened, smoothed, and occasionally simple-stamped. The decorative techniques on the sherds include trailing, cord-impressing, cord-wrapped rod impressing, and scoring (Schneider and Kinney 1978:7-10). At other locations, Avonlea ceramics have been described as fabric-impressed vessels with bosses or punctates (Reeves 1970).

Very little is known about the Avonlea burial system. There has been no discovered evidence of Avonlea burial mounds. In the Powder River area of Wyoming and Montana, Avonlea burials are characterized by primary pit burials with many ornamental and utilitarian grave goods (Reeves 1970).

The Avonlea culture had a great reliance on bison as a subsistence base, as is attested to by the large number of bison kill sites which have yielded Avonlea projectile points (Joyes 1970). Most of these

sites appear to have been pounds, but a few have been reported as true jumps (Davis and Stallcop 1966).

The evidence suggests that Avonlea campsites were small, temporary camps inhabited by nomads. These people appeared to have settled seasonally in multi-band groupings in order to communally hunt bison (Joyes 1970). Little is known about the Avonlea habitation structures. Reeves (1970) speculates tipis were employed by these nomads.

A projectile point which was identified as being a Carmichael Wide-eared variety of the Avonlea complex was recovered from site 32RV208 during the present project. A single projectile point also assigned to the Avonlea complex was found at each of two sites immediately south of 32RV208 along the Souris River. These sites designated 32RV3 and 32RV7 are situated approximately seven and two miles south, respectively, of the project area (Floodman and Friedman 1986:521). The Nash survey, conducted in the vicinity of Melita, Manitoba, yielded two projectile points assigned to the Avonlea complex (Syms 1980).

Late Prehistoric Period (A.D. 700-1740)

The Arvilla complex is based primarily on the consistent reoccurring patterns of a number of burial mound sites in a geographic area extending from the St. Croix River Valley in east central Minnesota, west to the Red River Valley, north along that river to the Pembina Plain and to the Winnipeg area (Johnson 1973). St. Croix Stamped ceramics, which have been associated with Arvilla burial mounds in Minnesota (Anfinson 1979:169), have been recently discovered at the Jamestown Mound site in east-central North Dakota (Snortland-Coles 1988:2.3). The Arvilla complex developed rapidly about A.D. 500 to 600 and disappeared in the southern portion of the geographic area by A.D. 900, but may have continued for several centuries in the Red River Basin in Manitoba (Johnson 1973).

Some of the mounds of the previously mentioned Fordville-Blasky Mound site along the Forest River in Walsh County and the Arvilla Mounds on the Turtle River in Grand Forks County, North Dakota have been placed in this complex (Johnson 1973). The Fordville-Blasky site and the Arvilla Mound site are located approximately 100 miles and 75 miles northeast of the survey area respectively.

In reassessing the complex, Syms (1982:152) states that, "burial practices appear to be of little value for defining Arvilla because there is a tremendous variation in the nature of the pits and of the burials". Syms instead, produces a list of traits which he feels is useful in distinguishing Arvilla from other burial complexes. The trait list includes sandstone shaft abraders, shell beads, perforated clam shell gorgets, snail shell (Natica sp.), and elbow pipes (Syms 1982:156). Syms (1982:152) admits, however, that, "even the most common items appear in less than half the sites".

No sites in the Souris River basin have been assigned to the Arvilla complex. The closest known Arvilla sites to the study area are the Star and Calf Mound sites (Syms 1977:113) in the Pembina River basin of south-central Manitoba. The sites are situated approximately 150 miles east and slightly north in relation to the present survey area.

Many believe that the Blackduck complex supplanted the Arvilla complex in northern Minnesota about A.D. 1000 (Beckes and Keyser 1983:137). Anfinson (1979:23) believes that, viewed as a whole, the Blackduck ceramic tradition spans the period from at least A.D. 800 to the period of historic contact. Blackduck sites appear throughout the northern Great Lakes, and the known sites indicate a rapid expansion into the eastern Dakotas (Beckes and Keyser 1983:137). Syms (1977:136) suggests that increased population pressures, competition for resources, or technological innovation may have been partially responsible. Buchner (1979:115) suggests that Blackduck is a development out of the Laurel complex.

Blackduck camp sites are substantially larger than those of preceding cultures (Beckes and Keyser 1983:137), although circular mounds associated with Blackduck sites are modest in size compared to many earlier Laurel mounds (Anfinson 1979:24). Blackduck subsistence patterns show a definite trend from forest resources such as deer, elk, and moose to plains resources such as bison (Beckes and Keyser 1983:137).

The Blackduck complex is characterized by a ceramic assemblage which includes a distinctive rim form decorated by cord-wrapped rod impressions (Anfinson 1979). Syms (1977:106) believes that the Blackduck complex, represents the material remains of several interrelated, but autonomous Algonquin groups.

A rim sherd suggestive of Blackduck pottery was recovered from site 32RV429 (Floodman and Friedman 1986:586). This site is located along the Souris River approximately three miles south of the current study area. Two sites near Melita, Manitoba, in the Souris River basin, yielded ceramics classified as Blackduck ware (Syms 1980:96, 128). A rim sherd collected from the surface of a small mound site near Melita, Manitoba was described as being possibly transitional between Laurel and Blackduck wares (Syms 1980:187). The Stott site yielded Blackduck ceramics from a subsurface context dated between A.D. 800-1200 (Tisdale 1978). The Stott site is located in the Assiniboine River Basin approximately 120 northeast of the study area. Ceramics identified as Blackduck ware were recovered from site 32BI286 in northwest Billings County, N.D. (Campbell 1983). The site is located within the Little Missouri River Basin, approximately 200 miles southwest of the current study area. Two vessels were also recovered from the previously mentioned Jamestown Mound site which have been classified as Blackduck ware (Snortland-Coles 1988).

Syms (1979) hypothesized that a separate, strongly Mississippian-influenced burial complex developed on the Northeastern Plains, immediately west of the Arvilla complex at about A.D. 900. Syms terms this the Devils Lake-Sourisford Burial Complex. This complex is con-

fined to an arc on the northeastern Plains between the aspen parkland and the Missouri Coteau. The greatest concentration of sites occurs in the region of Devil's Lake, North Dakota and the Sourisford locality of southern Manitoba.

Most of the finds from the Devils Lake region were from excavations conducted by Montgomery (1906). Johnson (1973) noted that these sites show many characteristics with mounds assigned to the Arvilla complex. While listing numerous traits shown by the Devils Lake-Sourisford and Arvilla complexes, Syms (1979, 1982) feels that the difference outweighs the similarities.

The people who constructed Devil's Lake-Sourisford mounds were nomadic bison hunters who moved in a seasonal cycle which included wintering in the aspen parklands and sheltered valleys and summering on the plains. Syms (1979) believes they may have practiced horticulture in the spring and fall. According to Syms' cyclical hypothesis, complex-associated mounds in the Devil's Lake vicinity would represent spring burials of persons who had died during the winter. Syms (1979, 1982) continues to hypothesize that the Devils Lake-Sourisford Burial complex consisted of Siouan groups, who were influenced by Mississippian and Middle Missouri developments and lived during the period A.D. 900 to 1400. Fern Swenson (1988) feels that research in the James River area offers the possibility that semi-sedentary people, possibly ancestors of the historic Hidatza tribe, were responsible for the Devils Lake-Sourisford complex.

Syms (1977, 1980) has likened ceramic sherds recovered from the Feland site with pottery assigned to the Devils Lake-Sourisford complex. The Feland site is located on the Antler River, a tributary of the Souris River, just north of the U.S.-Canadian border approximately 45 miles northeast of the project area. One vessel from the Hendrickson III site is identified by Syms (1979:303) as having similarities with mortuary vessels of the Devils Lake-Sourisford complex. Two other vessels from the James River valley were also identified as being of this complex (Swenson 1988). The center for the complex is Devils Lake, which is located approximately 150 southeast of the project area.

The Wanikan culture, a cultural subunit of the Late Woodland Tradition is dated to ca. A.D. 1000-1750 in Minnesota (Anfinson 1979:176). Characteristics of the Wanikan culture include Sandy Lake ceramics, circular conical mounds, small triangular projectile points, and hearths and fire pits (Anfinson 1979:175; Birk 1977:31). Sandy Lake ware is suspected to have replaced an early Blackduck ceramic phase in the Mississippi Headwaters region of central Minnesota by A.D. 1100-1200 and appears to have been contemporaneous with a late Blackduck ceramic phase in northern Minnesota (Anfinson 1979:175).

Sandy Lake ware appears common in the Red River valley (Michlovic 1981:12). Three thermoluminescence dates on Sandy Lake pottery excavated at the Mooney site averaged 940 B.P. (Michlovic 1985:55). This site is located along the Red River, near Halstad, Minnesota. Michlovic (1985:34-35) draws close parallels between Sandy Lake ware and reconstructed vessels from the Synder Dam site in southwestern

Manitoba approximately 40 miles northeast of the study area. A Sandy Lake mortuary vessel was recently discovered during mound excavations at the Jamestown Mound site (Snortland-Coles 1988). Sandy Lake shell-tempered and fabric-impressed pottery has also been found in a subsurface context at Devils Lake, N.D. (Michlovic 1983). Fox (1982:100) tentatively classified body sherds collected from the 1977 survey of the Upper Souris River as Sandy Lake ware. These sherds were collected from sites which lie within 40 miles south of the current project area (Good and Fox 1978). The assignment of these sherds to this complex appear to have been based upon a scant amount of data. Scholars generally accept the hypothesis that producers of Sandy Lake pottery were probably Siouian speakers; however, whether they might have been proto-historic Assiniboine or proto-historic Eastern Dakota is cause for much debate (Birk 1977:31; Lugenbeal 1978:50-51).

The relationship and degree of overlap between the Arvilla, Blackduck, Devils Lake-Sourisford, and Sandy Lake complexes are presently unclear. Additional fieldwork and intensive comparative research will be required to bring about a clearer understanding of the Late Plains Woodland cultures and their interrelationship.

Plains Village Pattern

Lovick and Ahler (1982:55) feel that the "distinguishing feature of the Plains Village lifeway was the practice of intensive horticulture focusing on the staple maize as well as beans, squash, and sunflowers grown in garden plots scattered on the flood plains of the Missouri." These villagers also depended upon the bison and other products of hunting and gathering (Gregg and Davidson 1985:137). The key element in the Plains Village adaptive strategy was the production of a dependable, storable, surplus food supply (Lovick and Ahler 1982:55).

The origin of the Plains Village pattern has been debated. Traditionally, it was believed that the Plains Village people entered North Dakota from the south by following the Missouri River north (Lehmer 1971). Current researchers have presented evidence which suggests that some Plains Village groups were originally from Woodland cultures who adopted a horticultural lifeway (Fawcett 1988; Ahler, et al. 1982; Snortland-Coles 1988). While these hypotheses appear promising, additional archaeological research is required to prove or disprove them. For the purposes of this report the traditional classification of the Plains Village pattern by Lehmer will be followed with some modification from reviews of more recent research.

The earliest Plains Village sites of the Middle Missouri subarea appear in the Grand-Moreau, Bad-Cheyenne, and Big Bend regions of South Dakota ca. A.D. 900. This occupation, which Lehmer (1971:97-98) terms the Initial Variant of the Middle Missouri tradition (IMM), may represent a migration of people from the Mill Creek, Cambria, and/or Great Oasis villages in southwestern Minnesota and/or northwestern Iowa. The IMM is characterized by long rectangular houses and ceramic vessels with cord-roughened bodies. There are no sites presently recognized as IMM variant in North Dakota (Gregg and Davidson 1985).

The earliest documented Plains village occupations in North Dakota appear along the Knife-Heart and Cannonball River region ca. A.D. 1000-1050 (Lehmer 1971). These occupations are known as the Extended Middle Missouri variant (EMM). The Initial and Extended variants appear to be closely related (Gregg and Davidson 1985), with the only consistent differences being in ceramic wares. The EMM is characterized by slightly flared rimmed vessels (Riggs ware) and S-rimmed vessels (Fort Yates ware) with simple stamped and smoothed decorated bodies. The northernmost expression of the EMM along the trench is located in northwest Mercer County (Lehmer 1971) and is slightly more than 100 miles southwest of the current survey area. One rim sherd from the Curtis Ones collection was identified as possibly representing Fort Yates ware and several other rims from the collection show strong EMM influence (Floodman et al. 1985). The Curtis Ones site (32RV429) is located approximately three miles south the the survey area. A portion of the ceramic collection from site 32RV212 shares many attributes with both Riggs and Fort Yates wares (see Ceramic Analysis section).

Lovick and Ahler (1982:73-74) have recently assigned a large number of poorly known sites into a category known as the Scattered Village complex. This complex is tentatively dated between A.D. 1400 and 1700 and includes sites found mostly in the vicinity of Stanton, North Dakota. Stanton is located along the west bank of the Missouri River approximately 110 miles south and slightly east of the current study area. Key characteristics of this group include the occurrence of scattered village settlement plans, a lack of fortifications, and little surface evidence of house locations and house types (Lovick and Ahler 1982:73-74). The ceramics of this complex appear to be similar to pottery classified as Riggs and Fort Yates wares (Ahler and Swenson 1980), although they may also have some distinct attributes when compared to these wares. Pottery included within this complex contain one or more of the following attributes: 1) the presence of both S-shaped rims and straight/out-curved rims; 2) frequent use of incised and trailed decorative techniques on the lips and rims; and 3) significant occurrences of check-stamped body sherd treatment (Lovick and Ahler 1982:73). These pottery characteristics are similar to those of a portion of the ceramics collected at site 32RV212 during the present survey.

Fortifications of contemporary IMM and EMM villages are indicative of conflict created when the EMM peoples from North Dakota expanded southward into the Bad-Cheyenne region (Lehmer 1971). Other evidence suggests they also enjoyed peaceful encounters (Gregg and Davidson 1985). Dates for the EMM variant extend to about A.D. 1550, while the IMM variant terminated between A.D. 1400-1500 (Lehmer 1971).

In the thirteenth century A.D., there was a population expansion into the Big Bend region of South Dakota from the Central Plains (Lehmer 1971). Lehmer (1971) refers to the influence of this expansion as the Initial variant of the Coalescent tradition. Whereas the Middle Missouri tradition represents the ancestral Mandan and perhaps the Hidatsa, the Coalescent tradition represents the ancestral Arikara (Lehmer 1971). The Initial Coalescent is characterized by circular, domed houses and pottery which blends attributes of the Central Plains and Middle Missouri traditions (Lehmer 1971). Initial Coalescent sites

are presently confined to the Big Bend region of South Dakota. Around A.D. 1500 this culture evolved into the Extended Coalescent variant and expanded northward from the White River to the South Dakota-North Dakota border. The ceramics of the Extended Coalescent variant are thin walled, with sparse grit tempering, and most have incised decorations on the rims, lips, and shoulders (Lehmer 1971).

The Terminal Middle Missouri (TMM) variant coexisted with the Extended Coalescent variant during the period A.D. 1550-1675 (Lehmer 1971). The TMM sites were fewer in number, larger, and strongly fortified in comparison to the preceding EMM sites. TMM sites were distributed northward from the Cannonball and Grand River regions. The northernmost sites assigned to the TMM along the Missouri Trench are located north of Bismarck, North Dakota in southern Oliver County (Lehmer 1971) about 160 miles south of the current project area. TMM ceramics appear to be a direct outgrowth of the EMM ceramic types and contain Riggs and Fort Yates wares and a second type of S-shaped rim known as LeBeau ware (Lehmer 1971). Vessels with check-stamped bodies appear to be considerably more common in TMM sites than in the preceding EMM sites, however (Neuman 1963).

Most Plains Village archeology has centered around the Middle Missouri subarea, but expressions of this pattern have also been found in eastern North Dakota. Much material assigned to the Plains Village pattern has been found in the Jamestown area of the James River Valley in North Dakota (Schneider 1983; Gregg et al. 1987a; Gregg et al. 1987b; Wheeler 1963). Expressions of the Plains Village pattern have also been recorded in the Sheyenne River Valley in eastern North Dakota (Vehik 1979; Wood 1971) and the Red River Valley of extreme western Minnesota (Michlovic 1983).

Dr. Fred Schneider (1982:121-129) has provisionally divided the Plains Village pattern sites of North Dakota's James River Valley into two periods --- the Early and Late Plains Village periods. The Early Plains Village period (A.D. 950-1400) is defined primarily on the basis of ceramic attributes (Schneider 1982). The ceramics which characterize this period are thin, well-made vessels with smoothed or burnished exterior surfaces and trailed decorations. Possibly the earliest Plains Village component recognized in the James River Basin of North Dakota, is at the Quast site (32LM240) where a hearth containing corn was radiocarbon dated to ca. A.D. 1245.

The Late Plains Village period (A.D. 1400-1700) is also primarily defined by ceramic attributes (Schneider 1982; Gregg et al. 1985). The Hendrickson III site (32SN403), a small, fortified earthlodge villages, yielded three radiocarbon dates which ranged from A.D. 1365 to A.D. 1525 with an average date of A.D. 1428 + 39 and an average corrected date of A.D. 1401 \pm 55 (Schneider 1982:123). The ceramic assemblage is complex and shares attributes with ceramics from Early Plains Village sites and Plains Villages sites of the Northeastern Plains (Schneider 1982). The surface treatments of the body sherds are most frequently smoothed (80%) with minor additions of simple-stamping (9%), check-stamping (7%), and cord-wrapped paddling (cord-roughening) (Dahlberg 1977:209). Ceramics recovered from sites 32RV212 and 32RV229 of the current survey project generally have attributes similar to these Late

Plains Village period traits.

Sherds taken from the Hendrickson III site have characteristic thin walls, while many of the rims are high, straight, and perpendicular (Dahlberg 1977). The Hendrickson III site is located along the James River near Montpelier, North Dakota approximately 210 miles southeast of the survey area. Similarities have been noted between Hendrickson III pottery and Lisbon, Oswago, and Buchanan wares of the Stutsman focus (Wheeler 1963). However, the closest similarity of these wares appears to be with ceramics from the Schultz site on the Sheyenne River in southeastern North Dakota (Dahlberg 1977:204). The Schultz site is located in the Sheyenne River drainage near Lisbon, North Dakota approximately 250 miles southeast from the current study area. The Stutsman focus is a cultural complex located north of Jamestown, North Dakota and identified by Wheeler (1963) as being of the early Historic period (A.D. 1750-1800) and possibly of Hidatsa origin. Schneider (1982:130-131) seriously questions Wheeler's interpretations and convincingly suggests that the Stutsman focus dates to ca. A.D. 1600-1700. Similarities between the attributes of sherds from the Schultz site and a portion of the ceramic collection from site 32RV212, and to a lesser extent site 32RV209, are detailed in the ceramic analysis section of this report. Possible expressions of Plains Village ceramics have also been reported in the Souris River basin by Fox (1982) and Syms (1977).

The Mortlach aggregate is discussed here because of the stylistic parallels noted between ceramics found during the current survey and some assigned to the Mortlach aggregate. This name is classified as an aggregate because its geographic and temporal parameters are poorly defined (Schneider and Kinney 1978; Gregg and Davidson 1985:135). The name is derived from the upper two levels at the Mortlach site in southern Saskatchewan, Canada (Wettlaufer 1955:19-23). Other sites assigned to this component are located in northwestern North Dakota, northeastern Montana, and southwestern Manitoba (Gregg 1983). Syms (1980:125) estimates the temporal range to be A.D. 1500-1780. Mortlach ceramics display wide variation in exterior surface treatment, rim form, lip form, and decoration (Gregg 1983:135). Distinctive wedge-shaped rims often displaying dentate-stamped decorations have been found in several sites assigned to the Mortlach aggregate (Schneider and Kinney 1978; Johnson 1977; Finnigan 1988). Flat-rimmed vessels with a distinct "overhang" have also been noted at Mortlach aggregate sites (Finnigan 1988; Joyes 1973). Site 32RV320 of the current survey has been tentatively assigned to the Mortlach aggregate based upon the similarity of the ceramic attributes on sherds recovered from the site and those of Mortlach aggregate wares. Parallels between ceramic attributes associated with Mortlach aggregate ceramics and pottery from sites 32RV212 and 32RV229 are also noted in the ceramic analysis section of this report.

Manifestations of the Mortlach aggregate have been previously noted in the Souris River Basin from a component of the Long Creek site (Wettlaufer and Mayer-Oakes 1960) located within 50 miles northwest of the study area and at the Green site (Finnigan 1988) situated near Estevan, Saskatchewan, approximately 60 miles northwest of the survey area. A possible relationship exists between Mortlach aggregate sites

and sherds recovered from test excavations at site 32RV429 (Floodman et al. 1986:583). This site is located approximately three miles south of the current project area. A component of the Cherry Point site, located along Oak Lake, has also been assigned to the Mortlach aggregate (Syms 1977) and is the easternmost manifestation of this culture recognized to date. Oak Lake is located between the Souris and Assiniboine River basins approximately 70 miles northeast of the current survey area. Syms (1977) draws possible parallels between check-stamped and dentate decorated ceramics from Mortlach sites and proto-historic Hidatza and Crow ceramics. Joyes (1973), on the other hand, feels Mortlach wares were possibly made by the Atsina.

Several small, triangular, side-notched and unnotched projectile points have been found at several locations along the Souris River Basin. Good and Fox (1978) reported seven separate sites which contained small points in these categories. All these locations are within 10 miles of the present survey area. Floodman (et al. 1985 and Friedman 1986) reported two additional sites which contained Late Prehistoric period projectile points immediately south of the survey area. The Nash survey, which was conducted approximately 50 miles northeast of the study area, produced twelve sites with small triangular points. Six sites recorded during the Rafferty Dam survey also yielded small Triangular points (Finnigan 1986). This project was conducted south of Estevan, Saskatchewan, within approximately 50 miles of the survey area.

Proto-Historic and Early Historic Periods (A.D. 1675-1862)

Plains Village Pattern

Interaction between areas which had Terminal Middle Missouri and Extended Coalescent variant material cultures in the Cannonball region and to the south "led to the crystallization of the Coalescent tradition and to the disappearance of the Middle Missouri tradition as a recognizable entity" (Lehmer 1971:127). It is at this point in time (ca. 1675) that all sedentary horticultural groups in the Middle Missouri subarea are classified together in the Post-Contact variant of the Coalescent (P-CC) tradition (Lehmer 1971). The Heart River phase of this variant is identified as the beginning of the Mandan and Hidatza tribes (Lehmer 1971). Contrary to this, Ahler and Weston (1981) contend from investigations conducted at the Knife River Indian Villages that the Heart River phase is prehistoric and pre-contact in age. It is agreed, however, that by about A.D. 1710 European trade goods were beginning to replace native made tools, weapons, and articles of apparel (Lovick and Ahler 1982).

The Disorganized Coalescent variant is roughly equivalent to the start of the Historic period (A.D. 1780-1862). Lovick and Ahler (1982) believe this variant should be dated from at least A.D. 1750. Ceramics from the Knife River phase of this variant are described as degenerate, a condition caused by the death of the pottery makers by exposure to epidemic diseases (Lovick and Ahler 1982). The great smallpox epidemic of 1837 caused the surviving Mandan and Hidatza Indians to abandon

their villages at Fort Clark and eventually establish another settlement known as Like-A-Fishhook village, near present-day Garrison, North Dakota (Smith 1972). The Mandan and Hidatsa were joined by the Arikara in 1862 (Smith 1972).

Manifestations of the P-CC have been recognized outside the Missouri River Valley. The Biesterfeldt site dates to the mid-1700s and may represent an early earthlodge village which was occupied by members of the Cheyenne tribe (Wood 1971). The Biesterfeldt site is located on the Sheyenne River east of Lisbon, N.D. approximately 275 miles southeast of the project area. While the rim sherds from this site bear little or no similarity to rim sherds collected from sites of the current survey, a linear check-stamped body sherd collected from site 32RV206 is nearly identical to sherds found at the Biesterfeldt site. This is discussed in more detail in the ceramic analysis section of this report.

One metal projectile point was observed in the private collection of Dennis Emmel and photographed for this report (Appendix B). Emmel found this point on the upland terraces immediately west of the project area (Emmel 1988). Syms (1980) also reports the presence of metal projectile points from two private collections from the Melita, Manitoba area of the Souris River Basin.

Equestrian Nomadic Tradition

This tradition, as discussed by Gregg and Davidson (1985:153-155), represents a brief interval of time (ca. A.D. 1725-1870) when the widely availability of horses significantly altered lifeways of Plains Indians. The horse was a greatly improved energy source which increased the capacity both to acquire food and to transport it (Beardsley et al. 1956:148). The Equestrian Nomadic tradition was a successful lifeway throughout most of the Plains and in some portions of the prairies and the Rocky Mountain areas (Gregg and Davidson 1985:153).

The key elements in identifying this tradition in an archeological context is presence of horses in association with Euro-American trade goods. The tipi was universally used in this cultural pattern, and stone circles are one manifestation of this in the archaeological record. However, use of tipis and stone circles can be traced back at least 3000 years, and therefore stone circles alone are of little diagnostic value in identifying this tradition archeologically (Metcalf and Schweigert 1987:35).

Historic Native American Groups

Syms (1980) describes the ceramic period of southwest Manitoba in terms of a Co-Influence Sphere (CIS). This scheme emphasizes the importance of a constant consideration of more than one ethnic group at any season or year in a region and the need to consider developments taking place outside of the region (Syms 1980:5). According to the CIS model, each ethnic group utilized three area types while participating in the activities of subsistence, trade, and warfare. The core or home

area is located in the environment in which most resource utilization and/or time was spent (Syms 1980:53). Secondary areas are those defined as areas in which particular groups exploited for specific resources (Syms 1980:6). Tertiary areas represent marginal areas that were utilized briefly and intermittently (Syms 1980:6). The CIS emphasizes the importance of interaction between ethnic groups (Syms 1980:6). This interaction might take positive forms (trade), negative forms (warfare), or simply temporary co-habitation among groups at any level of social organization.

Syms (1980:38) contends that, "In the southwestern Manitoba region, during the 18th century there was a complex pattern of several groups utilizing the same area according to more than one seasonal pattern". Syms (1980) delineates these groups mainly through ethnographic evidence.

Some groups were directly reported to be occupants of southwest Manitoba and others were merely inferred to have used the region. The current project area and the southwest Manitoba region are separated geographically, but there are eco-zones common to each: a grassland vegetative zone and the Souris River Valley. However, the northern portion of the southwest Manitoba region contains an aspen parkland vegetative zone not found in the current survey area.

Review of available literature yielded little direct evidence of named historic tribal affiliations occupying the project area. However, it is possible to generate a list of Native American groups which potentially utilized this area by combining information collected for the southwestern Manitoba region (Syms 1980) with archaeological evidence recovered during the course of the survey. Each of these groups are briefly discussed below.

The Assiniboine heavily traded at fur posts along the Assiniboine and Souris Rivers in southern Manitoba as early as A.D. 1780 (Floodman and Friedman 1986). In southwestern Manitoba the Assiniboine utilized the aspen parklands as a core area most of the year, but traveled out onto the Plains in summer in pursuit of migrating bison herds (Syms 1980). It is likely that Assiniboine excursions into the current survey area took place in late spring/early summer and again in late summer/early autumn as they followed the bison back into the aspen parklands.

The Sioux are documented to have hunted bison in the grasslands of southwestern Manitoba in the late autumn (Syms 1980). It is probable that they used the current survey area for the same purpose. The Sioux are credited with attacks on fur trading posts in the Souris River Basin of southern Manitoba (Davidson 1918; Tyrell 1916; McMorran 1935). It is possible they traversed the current study area during such hostilities. The Sioux may have also traveled through the project area annually enroute to the Mandan and Hidatsa villages for trading purposes.

The core area for the Mandan and Hidatsa in the early historic period was along the Missouri River in central North Dakota, where they resided in permanent earthlodge villages. However, these semi-seden-

tary agriculturalists also participated in periodic bison hunts in southern Manitoba during autumn (Syms 1980:40, 53). The Mandan were trading at Pine Fort on the Assiniboine River in 1785 (Stewart 1930:8). This same tribe, who in the past were friendly to whites, attacked Brandon House, located near the mouth of the Souris River, in 1794 and were a threat to this area until the fort was abandoned in 1832 (Stewart 1930:14, 30).

The Extended Middle Missouri variant-like ceramics collected from the current study area may represent ancestral manifestations of the Mandan or Hidatsa. Syms (1980) draws possible links between the Crow-Hidatsa tribes and the Mortlach aggregate based upon ceramic attributes from pottery of both cultural manifestations. The Crow and Hidatsa were once a single ethnic group. Similarities have also been noted between some ceramics collected from this project area and pottery assigned to the Stutsman focus, believed by some scholars to be Hidatsa in origin (Wheeler 1963).

The Plains Ojibwa (Saulteaux, Chippewa, or Bungi) occupied the Assiniboine, Souris, Red, and Upper Missouri River valleys by the 1790s (Howard 1966:13-16). The core area for these groups was the aspen parklands to the north, but they utilized the prairie grasslands in summer to pursue bison and also war with the Sioux and Mandan (Syms 1977:40, 51). These endeavors may have brought the Plains Ojibwa into and through the current project area.

The Atsina, a branch of the Algonquin-speaking Arapaho, were reported by Alexander Mackenzie to range from the north bend of the Missouri River to the south bend of the Assiniboine River (Vickers 1946:6). This distribution includes this project area. Joyes (1973) feels that Mortlach ware was made by the Gros Ventre, who were also referred to as the Atsina (White 1913). Ceramics with attributes similar to Mortlach ware were collected during the present cultural inventory.

Several cord-marked and fabric-impressed body sherds were recovered during the present project which may represent Woodland manifestations. Due to a paucity of culturally diagnostic artifacts and the disturbed nature of the sites from which these body sherds were collected, a more precise determination of the cultural affiliation of these sites is not possible at present. The Selkirk horizon is characterized by fabric-impressed and net-impressed pottery and may be ancestral to the Cree (Syms 1980). Blackduck ceramics are also characterized as having both cord-marked and fabric-impressed bodies (Anfinson 1979:28). Blackduck ware was the product of Algonquin-speaking groups (Anfinson 1979:24).

The Cheyenne, Omaha, and Ponca are three ethnic groups whose core areas were located on the grasslands south of the current project area (Syms 1980:40). It is possible that one or more of these groups utilized the Souris River Basin as a tertiary area for the pursuit of bison.

Brief History of the Project Area*

(*Editor's note: This history of the Souris River region was extracted from Schweigert 1979, "Historical Cultural Resource Survey of the Upper Souris River, North Dakota".)

In 1731 Pierre Gaultier de Varennes, Sieur de La Verendrye, began a quest for an overland route from the Great Lakes to the Pacific Ocean. Verendrye had been granted permission by King Louis XV of France, then ruler of Canada, to conduct a campaign of exploration at his own expense. Verendrye was granted absolute monopoly of any fur trade developed as a result of his explorations, and it was this incentive that led Montreal merchants to finance his journeys. The explorer established a string of forts and fur trading posts from Lake Superior to Lake of the Woods, Lake Winnipeg, and on the Red and Assiniboine Rivers.

In 1738 Verendrye established Fort LaReine at a point where an established Indian trade trail crossed the Assiniboine River. This trail had apparently developed as a route by which the sedentary tribes of the Missouri River, i.e., the Mandan, Hidatsa, and Arikara, as well as the Assiniboine journeyed northward to trade corn, other victuals, and furs for European manufactured goods. The English Hudson Bay Company had begun trading operations near York factory about 1672, but the Missouri River peoples initially obtained their trade goods indirectly through Cree or other Indian groups (Burpee 1927:312-313; Flandreau 1925). Verendrye's interest in the sedentary tribes was heightened by reports of Assiniboine Indians that the Mandans were a light-skinned people who knew of a route to the Western Sea.

In October, 1738, Verendrye departed Fort LaReine in company with two of his sons and twenty other men and travelled to a fortified earthlodge village on the Missouri River. The Verendrye party stayed with this group for several weeks and returned to Fort LaReine in January of 1739. The route followed by the party has remained a matter of conjecture and argument among scholars because of the vague and sparing descriptions recorded by the explorer in a letter written to his superior some years after the journey. The party almost surely entered the area of what is now North Dakota at a point to the north and ~~west~~ of the Turtle Mountains, may have reached a point near the bottom of the Souris Loop, and then may have continued overland to the Missouri River near Bismarck. Other interpretations place the villages of Verendrye's visit to the west of Minot, and indicate that the tribe visited was the Hidatsa rather than the Mandan (Burpee 1927:312; Libby 1916; Reid 1965; and Robinson 1966:28-32).

Verendrye's disappointment that the people he visited were not white-skinned was only surpassed by the discovery that the great river on which they lived flowed south and east, rather than west toward the Pacific Ocean. In 1742 to 1743 two of Verendrye's sons again travelled to the Missouri River villages and ventured far to the west and south but did not find Indians who could tell them of the Western Sea. The failure of the expeditions to find the desired route did not detract from the importance of the explorations for the French fur trade effort, however, and from 1738 to about 1780 the French-Canadians

monopolized the trade of the Assiniboine-Souris-Missouri area.

French trading activities in this area were conducted under questionable legality. England claimed all lands that drained into Hudson Bay including the basins of the Red, Assiniboine, and Souris rivers. In 1670 the English crown granted to a group of adventurers and merchants, known as the Hudson's Bay Company, absolute rights of trade and government over the entire Hudson Bay drainage. At the close of the Seven Year's War in 1763, France ceded her Canadian possessions to England and her Louisiana territories to Spain. The Missouri River drainage remained the property of Spain until ceded back to France in 1800. France sold the Missouri River drainage to the United States in 1804 as part of the Louisiana Purchase. The middle Souris area became the property of the United States by treaties with Great Britain in 1818 and 1834.

The expulsion of the French government of Canada in 1763 removed the monopolistic licensing practices of the French fur trade, and left the traders virtually limited only by their own fortitude and financial resources. A period of fierce and violent competition followed, during which the rival partnerships extended the area of the Montreal trade from Lake Superior to the Upper Saskatchewan River and farther. The violence and ruinous price wars of the competition led in 1783 to an amalgamation of interests known as the North West Company, which included French Canadians, Scotsmen, and a few occasional Yankee. The North West Company was generally the vanguard of the fur trade and the chief opponent of the Hudson's Bay Company from its formation until it merged with the latter company in 1821.

The North West Company did not monopolize the Montreal-based trade, however, and many independent traders continued to offer competition to the two major companies. In 1785 the North West Company itself was challenged by a group of dissatisfied traders known as the New North West Company, or more generally the XY Company. Led by Alexander Mackenzie, a former employee of the North West Company, the XY Company waged bloody competition with both of the larger and older companies until absorbed by the North West Company in 1804 (Phillips 1961:II:110-114). All three of the major British companies, and independent traders as well, penetrated the Assiniboine-Souris-Missouri trade area from trading posts on the Assiniboine and lower Souris River in what is now Manitoba.

It is not known when the Montreal traders began to visit the Souris valley in North Dakota on a regular basis, but there is some evidence that traders had traversed the region and were among the Mandans on the Missouri by the early 1770s (Gates 1933:39, 51). By 1780 the Canadian traders had established posts on the Assiniboine River and had apparently extensively explored the region between their forts and the Missouri River villages (Davidson 1918:46; Masson 1890:II, "Equisse":17-18). The first regular terminus of the Assiniboine-Missouri trade appears to have been Fort Epinette, of Pine Fort, a North West Company post on the Assiniboine River some fifteen miles downstream from the mouth of the Souris. Built in 1785, Pine Fort not only enjoyed half the fur trade of the Assiniboine River and all the fur trade of the Missouri tribes, but was also market for corn

and other horticultural produce of the Missouri River tribes. The corn was of special value to the traders because of the distance and difficulties of transporting grain in canoes from Montreal. By 1785 the Mandans were themselves travelling to Pine Fort to trade (Stewart 1930:8; Wagner 1955:Map II).

The monopoly of Pine Fort was broken in the fall of 1793 when an independent trader established a post at the mouth of the Souris in order to intercept the Indians headed for Pine Fort. In short order the North West Company established Assiniboine House or McDonnell's House adjacent to the independent trader, and in 1794 Pine Fort was abandoned. Other competition soon established itself at the mouth of the Souris, so that during the season of 1794-1795 there were no less than five trading posts there. The Assiniboine River as a whole had upward of twenty posts in 1795. In 1804 the North West Company built Fort LaSouris on the Souris River some miles upstream from the mouth, to replace Assiniboine House. Fort LaSouris was operated until 1807, when Pine Fort was re-established. The closest North West Company trading post to the North Dakota section of the Souris was Ash House, or Fort de la Frenier, built in 1795 on the Souris above the mouth of the Plumb River near the present Hartney, Manitoba. Ash House was operated for only a year or two before being abandoned because of the threat of attack by the Sioux (Tyrell 1916:213; Coues 1897:I:305-306; Davidson 1918:47; Masson 1889:I:272; Stewart 1930:9, 11, 14, 22-23).

The Hudson's Bay Company was not to be done out of a share of the Assiniboine-Souris trade. As early as 1780 traders from York Factory, the Company's depot on Hudson Bay, may have explored the Souris and Assiniboine rivers and may have crossed the prairies to the Missouri River (Burpee 1935:356; Davidson 1918:46). In February, 1794, the Company actively entered the Souris-Missouri trade by establishing Brandon House near the mouth of the Souris. From Brandon House the Company conducted its trade to the south by means of "freemen", who took trade goods on credit and paid with peltries on their return to the post. The Hudson's Bay Company also had a wintering post, known as Lena's House, on the south side of the Turtle Mountains, in competition with an XY Company post in 1801-1802 (McMorran 1935:56; Reid 1965:145).

The English and Canadian fur companies apparently never established major trading posts on the middle Souris River in what is now North Dakota, even though such establishments might have facilitated trade with the Missouri River tribes. The foremost reasons for the absence of posts on the middle Souris were probably the difficulty of navigation of the stream, hostile Indian inhabitants, and a relatively unprofitable trade situation with the Missouri tribes. The Souris loop area could be reached from the Assiniboine River posts in a shorter time by travelling overland than by canoe on the shallow and winding river. Once at the bottom of the Souris loop, the traders would necessarily again revert to pack animals because there was no water route between the Souris and Missouri rivers.

The middle Souris region was occupied by the Assiniboine and Dakota or Sioux tribes, who were as often as not hostile to the traders. As early as 1780 a series of forts on the Assiniboine River were attacked after a trader administered a lethal dose of opium to an

Assiniboine. The uprising threatened to push all traders from the region before a smallpox epidemic diverted the Indians' attentions (Davidson 1918:46). In 1801 Alexander Henry of the North West Company expressed fears of encountering Assiniboine Indians between the Mandan villages and Fort Assiniboine, "as they have never been known to give quarter to white people in the country" (Burpee 1935:II:385).

The Dakota were seasonal worries to the traders, because these Indians retired to villages to the south during the winters. During 1793 David Monin, North West Company clerk in charge of Pine Fort, was killed by the Sioux while he was returning from the Mandan villages. Ash House was abandoned because of the threat of Sioux attack, as probably was Lena's House in the Turtle Mountains (Davidson 1918:47; Tyrell 1916:213; McMorran 1935:59). As late as 1857 the Dakota were harassing Hudson's Bay Company traders and Red River Metis hunters on the lower Souris (Hind 1971:143-144). The Hudson's Bay Company apparently also met hostility from the Mandans, who were generally peaceful and friendly toward Whites. Brandon House was attacked in 1794 by the Mandans, who were a threat to the post until it was abandoned in 1832 (Stewart 1930:14, 30). Raids by Mandan war parties may have been instigated by the rival North West Company and later by the American Fur Company.

The profitability of the Missouri villages' trade probably tapered off rapidly after the establishment of competition there. As noted previously, the North West Company maintained a virtual monopoly on this trade from 1783 to 1793, but by 1805-1806 the North West Company had decided to abort its attempt to organize the Missouri trade. In 1805 trader Charles MacKenzie wrote "It is incredible the great quantity of merchandise which the Missouri Indians have accumulated" (Masson 1889:I:334, II:87). The British companies may have continued the Missouri trade by means of the freemen system, but definitely they shifted their main efforts to more lucrative fur areas to the north and west.

After the merger of the North West Company's with the Hudson's Bay Company in 1821, the competition for Souris River furs came from fur companies of the United States, principally the American Fur Company. In 1822 the Hudson's Bay Company abandoned its remaining fur posts south of the Forty-ninth Parallel, but some employees of the British Company chose to remain in that territory, accepted citizenship in the United States, and formed the Columbia Fur Company. The new company, with headquarters at Lake Traverse in southwestern Minnesota and outfitting through St. Louis, quickly gained control of the fur trade from Lake Superior to the Missouri River (Keating 1959:325; Chittenden 1936:325). Although no trading posts are known to have been established by the Columbia Company in the Souris area, it is possible that temporary wintering posts were operated there. The Columbia Fur Company was absorbed by the American Fur Company in 1827.

The American Fur Company pursued a passive policy along the International Boundary for a number of years, and in fact accepted an annual payment from the Hudson's Bay Company to stay clear of the border region (Robinson 1966:73). In 1842 the American Fur Company was supplanted by Pierre Chouteau, Jr. and Company and the agreement with the

Hudson's Bay Company was not renewed. In the fall of 1844, Norman W. Kittson established an American post at Pembina on the Red River, which he moved to St. Joseph, near present day Wahalla, North Dakota, in 1853. Kittson established a line of posts along the border, including one post on the Souris River. Although there is very little information available on the identity or location of the Souris post, it may have been the wintering establishment of Peter Garrioch. Garrioch occupied a post on the Souris between 1843 and 1846, and has left a journal account of some aspects of his situation (Garrioch MS 1846 (?):unpag.; Robinson 1966:77). One authority places Garrioch's post somewhere in the vicinity of Melita, Manitoba, but to the south of the border (McMorran 1935:60).

Kittson's primary trade was with the Red River Metis, the mixed heritage products of the fur trade. The Metis population around Pembina had grown from a few in 1805 to over 1,000 in 1850, and the bulk of this population subsisted on the products of semi-annual bison hunts into the United States territory (Bond 1856:328; Robinson 1966:68; Coues 1897:268-269). Because of the Hudson's Bay Company monopoly on trade, the Metis north of the border were forced to sell their peltries to the Company at the Company's prices and to buy all of their goods from the Hudson's Bay company. Dissatisfaction with these policies led to wholesale smuggling of furs and goods across the border, and eventually to open violence between the Metis and the Company (Listenfelt 1913).

Unable to import goods on Hudson's Bay Company ships, independent traders from north of the border entered into contracts or agreements with Kittson, whereby Kittson supplied trade and other goods and the traders supplied the furs. Traders James Sinclair and Thomas McDermott, with whom Peter Garrioch was associated, entered into one such agreement in 1845. Another Metis trader by the name of McLaughlin entered into a contract with the American Fur Company at Fort Union, on the Missouri, to carry on a trade with the Indians to the north of the Souris River (Robinson 1966:76; Listenfelt 1913:283, 300). Other Metis who are reported to have wintered on the Souris were Joe Desjarlais, who may have traded or trapped near Minot about 1856, and William Moorhead, who may have spent the winter of 1862-1863 near the present site of Towner. Metis and others continued to hunt and trap in the Souris valley until the time of Euro-American settlement in the 1880s (Toftsrud 1936:11; Wemeth 1962:310-311; McMorran 1935:56, 61; U.S. Census 1885; Lounsherry 1898:132).

The Hudson's Bay Company met the opposition of the Americans in a number of ways, including the establishment of posts opposite the American posts. The Company had abandoned Brandon House in 1824 because of a dearth of furs in the region, but in 1828 this fort was re-established to counter American competition from the Missouri River post. In 1825 or 1826 the Columbia Company had built a post on the Missouri at the mouth of the White Earth River, northwest of the present New Town, North Dakota, but the real competition for the trade with the Assiniboines of the Souris River area developed with the establishment of Fort Union in 1828 and Fort Clark in 1831. By 1832 Fort Union had captured most of the Assiniboine Indian trade, and in that year the Hudson's Bay Company established Fort Ellice on the

Assiniboine River in an attempt to regain the Company's former influence. Brandon House was operated on a full-time basis from 1828-1830, and was thereafter a wintering post until finally abandoned in 1832 (Robinson 1966:86-90; Stewart 1930:21, 51).

The Hudson's Bay Company also learned something from Kittson's employment of the independent Metis traders. In 1824 the Company appointed Metis Culbert Grant "Warden of the Prairies," and gave him specific instructions to trade furs and generally harass the Americans in the area from the Turtle Mountains westward to the Qu'Appelle River. In 1824 he established a post known as Grant's House on the lower Souris just west of what is now Hartney, Manitoba. This post probably remained in operation as an independent Metis post until 1855, and from 1855 to 1861 it was a Hudson's Bay Company wintering post. During the latter two years the post was under the direction of James Sinclair, the former smuggling partner of Kittson at Pembina. The Metis traders had little respect for the international boundary, and it is likely that some of the fur trapping, if not actual trading, for this fort occurred in the area of the Souris within the United States (McMorran 1935:55; Anonymous 1851:map; Cram 1882:map).

At the close of the organized fur trade competition in the 1860s, the Souris River valley in North Dakota was probably no longer occupied on a permanent basis by any Indian group. Hunting and war parties of the Assiniboine, Dakota, or Sioux, and possibly the Mandans, likely penetrated the area on occasion, and the Red River Metis continued to hunt the dwindling herds of bison. In the autumn of 1860 Charles Larpenteur, a well-known trader on the Missouri River, took an outfit of trade goods from St. Paul to Pembina and St. Joseph, and then westward to Fort Stewart in Montana. Larpenteur travelled by this route in order to "avoid all Indians," but especially the Sioux and Assiniboine. His route probably crossed the Souris near present Sourisford, Manitoba, and again near Minot, North Dakota (Larpenteur 1962:311-315).

In 1862 members of several eastern bands of Dakota or Sioux, who were dissatisfied with the lack of treaty performances by the United States, rose up against White settlers in Minnesota in what has become known as the Minnesota Massacre. Military actions against the Dakota were conducted between 1862 and 1865, and were intended to both pacify and punish the guilty Indians. Thousands of Dakota fled westward and northward from Minnesota in fear of the somewhat indiscriminate reprisals by the U.S. Army. During the 1865 campaign, General Alfred E. Sully led a force from Fort Rice, near present Bismarck, to Devils Lake and then to the Souris River. Sully skirted the bottom of the Souris loop, apparently found no Indians to impress or kill, and returned westward to the Missouri River. A large group of destitute Dakota were camped on the Souris during the winter of 1867-1868. These Indians were enticed by promises of provisions to become the first settlers of the Devils Lake Sioux Reservation (Sturnezk 1872:map; Board of Commissioners 1890:583; Wright 1953:71; U.S. Commissioner of Indian Affairs 1868).

The Souris valley was visited by other military and civilian expeditions. In 1853 Governor Issac I. Stevens led an exploring and

mapping party through the region in search of a northern route for a transcontinental railroad. Steven's party, which included a military escort under command of Lt. Cuvier Grover, reached the Souris Valley on July 24, 1853, near the site of present Velva, travelled along the south side of the valley to a point west of present Minot, and then headed northwestward around the headwaters of the White Earth River. A detachment under a Lt. Iander explored the Des Lacs Valley in detail. To the west of the Souris valley, Stevens encountered both a Metis hunting party and a large village of Assiniboine (Wemeth 1962:310-311; Anonymous 1878:map).

The discovery of gold in Montana in 1862 led to the development of overland wagon train traffic from Minnesota Territory to the gold fields. In the summer of 1862 Private James L. Fisk was relieved of his Civil War duties in Tennessee, promoted to the rank of captain, and assigned to lead an immigrant train from St. Paul to Fort Benton on the Missouri in Montana. The Fisk train generally followed the trail of the Stevens survey, where they would have some idea of the terrain and conditions to be encountered. The party reached the Souris Valley on July 26, 1862, and continued around the bottom of the Souris loop at a distance to the south where most coulees could be avoided. In 1863 Fisk led another wagon train over essentially the same route through the Souris region (Fisk 1862:35-59; White 1966:23-47).

When leaving the Souris valley in 1862, Fisk found and followed the trail of another wagon train that had departed from Minnesota about one month before the Fisk train. This train was led nominally by F. Chase Salter but actually by Thomas A. Holmes, and seems to have followed closely the route of Charles Larpenteur in 1860. The train crossed the Souris, travelled 60 3/4 miles before recrossing the river, and then proceeded westward toward Fort Union. The Holmes train was not accompanied by a military escort and the Metis guides who were hired at St. Joseph deserted the train out of fear of several Sioux Indians that the train met near the Souris valley. The train then made its way toward Fort Lincoln and on to Fort Benton with the aid of Assiniboine and Blackfoot guides (Fisk 1862:35-59; White 1966:23-47).

Although the 1862 Fisk and Holmes wagon trains were the only known trains to pass through the Souris valley, several others passed through what is now central North Dakota and it seemed as though a regular traffic would develop. In order to protect the overland route, and to pacify the Indians generally, several military posts were established. The forts established for this purpose in North Dakota were Fort Ransom on the Sheyenne River, Fort Totten on Devils Lake, and Fort Stevenson on the Missouri near present Garrison. By the time these posts were established in the summer of 1867, however, the last of the known Minnesota wagon trains to go to the gold fields was on its way. Thereafter these military posts protected settlers and provided a center for communication and commerce for the earliest settlers. Fort Pembina was established in 1870 at Pembina in an attempt to maintain order and enforce customs laws in the boundary area, and at least one military force passed through the lower loop area of the Souris valley enroute from Fort Stevenson to Fort Totten and Fort Pembina. The early military presence in the Souris region ended with the abandonment of Fort Stevenson in 1883, Fort Totten in 1890, and Fort Pembina in 1895.

(Sturneck 1872:map; Robinson 1966:182).

The location of the boundary between the British territories and the United States was always a matter of some concern for both governments, but that concern was heightened with the development of extensive international trade and the westward rush of settlement after the Civil War. In 1869 the two governments began a joint effort to survey and mark the boundary, and in 1873 the portion of the boundary in the Souris region was surveyed. The survey party of the United States was led by Colonel W.J. Twining, and was escorted by two companies of mounted infantry from Fort Abraham Lincoln. Some of the officers and men of this escort were killed with Custer at the Little Big Horn River in 1876. The surveyors and escort party camped for some time near the Souris crossings of the boundary in what is now Renville County (May 1913:195-225).

The Euro-American settlement of the Souris valley upstream from Minot occurred as two rather distinct movements between 1883 and 1910. The initial settlers of the region were typically stock raisers who took advantage of the luxuriant water and grasses of the river valley and used the unfenced uplands as open range. This first phase of settlement began with the arrival of herds of cattle driven from the Missouri River and from Iowa and Minnesota through the Devils Lake region. A number of ranch settlers also came into the Souris Valley from the northeast, usually having passed from eastern Canada through Winnipeg and Brandon, Manitoba. The settlement sites of this first movement were limited almost exclusively to the Souris valley itself, where the settlers had easy access to fresh water, timber for fuel and building purposes, and meadows of long-stem grasses. In typical fashion, the ranchers claimed an extensive strip of the valley lands, possibly on both sides of the river, for the exclusive use of their herds and for forage production purposes (Renville County Old Settlers Association 1976:11, 137; Stammen 1978).

The 1885 Census of Dakota Territory illustrates the ethnic diversity and the economy of the initial settlers. A total of 31 persons lived in what would become Renville County, of whom five were natives of Sweden, three were born in England, three were from Scotland, three from Ireland, three from Canada, and fourteen had been born in the United States. Eight of the men were engaged in stock raising: Nels Toverson (Tufveson) from Sweden, Robert M. and John T. Gray from England, George C. and Lewis Gray who were born in Canada, Benjamin Chew and Robert McKinney from Ireland, and Otis Young was from in the United States. Associated with the stock raisers were eight "herders" and one cook. Two of the herders, Clyde Joslin and William Grinnell, later became operators of their own ranches in the Souris Valley. Also present in 1885 were four farmers: Bror Hansen from Sweden, William Johnson from England, Alexander Allen from Scotland, and his son George Allen from Wisconsin. One professional hunter, George Cartright from New York, was present with his family, and one trapper, William Craig from Scotland, was also in residence (U.S. Census 1885).

Downstream, in the area that would become Ward County, 257 persons lived clustered in the valleys of the Souris and Des Lacs rivers. Of this population only 54 considered themselves farmers, and only 1093

acres were planted in 1884. Stock raising was an important industry in this part of the Souris Valley, with 600 cattle sold that year, but the early settlement economy was much more diverse than in the area farther north. The principal town at that time was Burlington, which was growing up around the store and coal mine of J. L. Colton near the mouth of the Des Lacs River. Lignite coal was available in many locations in the Souris Valley, but at Burlington thick veins of the fuel were exposed along the valley walls of the Des Lacs River. Colton and several others developed coal mines for the local market but also for use of and export by the railroads that would penetrate the region. Colton also established a brick factory near Burlington, which operated sporadically until at least 1927. By 1885 the Burlington area included resident professional brickmakers, brick masons, coal miners, stock raisers, farmers, and merchants (U.S Census 1885; Haughland 1927:25-26; Lounsherry 1896:10-13).

The settlement and early industrial development at Burlington was in part motivated by anticipation that one or more railroads would pass through that site. In 1883 the St. Paul, Minneapolis and Manitoba Railway, which would be later known as the Great Northern, reached Devils Lake from the east, connecting that point with Minneapolis and the railroad systems of the eastern United States. Construction halted at Devils Lake for three years, but land seekers and frontier businessmen began making their way overland to the Souris Valley. Many of the German and Scandinavian immigrants who settled the Souris Valley upstream from Minot came by this route. Others came northwestward from the next closest rail center, Jamestown, on the Northern Pacific Railroad. In 1886 the St. Paul, Minneapolis and Manitoba was extended to Minot, and the next year to Great Falls, Montana. The building of this railroad was a huge undertaking, with over 8500 men and 3500 teams in one camp at Minot in the spring of 1887 (Robinson 1966:142).

The Souris Valley was now easily accessible for prospective settlers, and markets for produce were available. The Souris and Des Lacs valleys slowly filled with settlers, but the settlement patterns remained a ribbon along the river valleys. Northward from Burlington, several post offices were established as centers for the distribution of goods and services, and as communication centers to the local communities. Typically, these post offices were located in the house of a prominent rancher or farmer who would occasionally travel to the regular postal facilities at Minot or Burlington, and who would distribute mail to the other rural post offices on his way. Compensations for these rural postmasters consisted only of the receipts from the sale of stamps at that location, but many postmasters also operated small general stores in conjunctions with their post offices.

Many of the distribution points for mail were known as post offices by the surrounding communities, but were never officially established. The known established post offices of the initial settlement period in the upper Souris Valley were Overholt, Joslyn, McKinney, and Stafford. Overholt Post Office was established in the home of Ole Person, and named for Joe Overholt, who was a homesteader and who later operated a stage line through the valley. The post

office remained in Person's home until 1901, when it was moved to Overholt townsite. Joslyn Post Office was first established in 1887 in the home of Clyde Joslyn, partner in the Mouse River Horse and Cattle Company. In 1889 the post office was moved to the store of Henry Ludke, where it remained until 1905. McKinney Post Office was established about 1886 in the home of Nels Swenson, and was named for Robert McKinney, partner in the ranching firm of McKinney and Young. The post office was moved in 1901 to the rural store of Carl Swenson and Louis Christian, and in 1904 it was moved to the new townsite of McKinney. The post office was discontinued August 15, 1916. Stafford Post Office was established in 1888 in the home of James Harkness, and named for settler Jebediah Stafford. The post office was moved in 1903 to the Hans Johnson store in Pleasant townsite and was discontinued in 1909. Farther south, the townsite of Davis was established about 1884 near the Davis Coal Mine east of Burlington, and Gassman townsite was established about 1883 near the Gassman Coal Mine just west of Minot (Williams 1961:250-252, 333-334; Anonymous 1910; Renville County Old Settlers Association 1976:14-15, 537-539, 556; Anonymous 1927:259).

Some of the post offices were served by stage coach lines between 1885 and 1906. Joe Overholt, mentioned above, established a stage service that began at Burlington, meandered between the scattered ranches in the Souris valley, and terminated at his ranch or the Joslyn Post Office. Overholt's stage carried mail and merchandise as well as passengers, and in 1886 it was extended northward to the newly established McKinney Post Office to the west of present Mohall. In 1886 a stage began running from Minot to McKinney, and continued to do so until 1893 when the Minneapolis, St. Paul and Sault Ste Marie (Soo Line) reached Kenmare. Tom Lansley then established a stage route running roughly east to west from McKinney Post Office to Joslyn Post Office and on to Kenmare. Lansley also came into proprietorship of the Burlington-McKinney route, and in early 1900 Lansley apparently passed ownership of the east-west stage line to J.A. Juno. Stage lines continued to connect the rural post offices and villages in the Souris Valley until 1906, by which time railroads had penetrated the area and had captured most of the passenger and freight traffic (Renville County Old Settlers Association 1976:12-13).

The first wave of settlement that began in 1883 ended about 1893 conformed roughly to what is known as the "Great Dakota Boom." Near the end of that era severe environmental conditions on the Great Plains and economic unrest in the United States combined to slow the spread of settlement in North Dakota. The flow of settlers into the upper Souris valley did not stop completely during the years 1893-1900 and the valley settlers did not abandon their claims and move elsewhere. Climatic conditions did force at least one rancher, William Harkness, to drive his stock to the Missouri River drainage when the Souris River area was devastated by drought in 1900, and other herds were reduced for lack of feed. The durability of the first settlements was due largely to the natural advantages of the Souris Valley but also to the virtual self-sufficiency of the farm-ranch units. Although the typical main occupation of a settlement unit was in stock raising, most settlers also raised some grain and nearly all settlers planted large gardens (Renville County Old Settlers Association 1976:64; Hembre 1977:41; Robinson 1966: 133-155; Harkness 1977:personal communication).

By 1900 the worst of the financial and climatic crises seemed to be ending, and by 1901 a second tide of landseekers had descended on the upper Souris valley. Between 1900 and 1905 nearly every quarter-section of land in the north-central part of North Dakota was claimed, and the settlement units in the Souris River area averaged not much more than 160 acres each. This intensive, small-unit settlement began at a time when most of the fertile Souris valley lands had been claimed, and most new settlers were limited to upland areas without frontage on the river. The upland areas offered little fresh surface water and virtually no timber for fuel, shelter, or building purposes. Many upland settlers maintained small herds of cattle and sheep, but the main economy of these units was in the production of cereal grains and flax seed for sale on the national markets.

The small size of the farming units and the lack of appreciable diversification made the "Second Boom" units especially dependent on favorable climatic conditions and on market prices. When drought, frost, and untimely precipitation occurred, the staple crops could be severely damaged and the farming unit as a whole would be unviable. By 1910 settlers of the "Second Boom" had begun to abandon their farms in the Souris uplands, and by 1915 the out-migration had reached major proportions. As early as 1904, less than 35 percent of the "Second Boom" land claims were still occupied. Much of the unoccupied lands had been claimed by speculators and later sold to other settlers. It has been estimated that as many as one-third of all persons who filed homestead claims in North Dakota between 1900 and 1910 were speculators who did not intend to stay on the land (Robinson 1966:245; Servold 1978:personal communication).

The Second Boom in the upper Souris area was accompanied by renewed railroad construction and the establishment of townsites and post offices. In 1893 the Soo Line had laid track from Minot northward to Portal on the Canadian border, and had thereby provided the upper Souris area with a railhead at Kenmare, some eighteen miles west of the Souris valley.

In 1903 to 1904 the Great Northern Railway penetrated the interior of the Souris loop with a line that ran from Granville to Sherwood. This line ran roughly parallel to the river, some fifteen miles to the east of the river. In 1905 the Soo Line constructed its "Wheat Line" from Oslo, Minnesota to Kenmare, in order to tap the rich grain traffic that had previously gone to the Great Northern. The "Wheat Line" ran in an east-to-west direction, crossing the river to the south of the town of Greene (Robinson 1966:237-239; Renville County Old Settlers Association 1976:16).

The townsites of Sherwood, Mohall, Loraine, Lansford, Forfar, Glenburn, Wolseth, Deering, and Rising sprouted at six-mile intervals along the Great Northern line in 1904. The next year the towns of Grano, Tolley, and Norma were built on the "Wheat Line," and in 1909 the townsite of Greene was established within the Souris Valley itself. Greene was founded by M.O. Hall, also the founder of Mohall, and was intended by its supporters to be the county seat of the newly created Renville County. Greene was established not only near the crossing of the Souris by the "Wheat Line" but also near a favorite picnic and

recreation spot called Smith's Grove.

Hall constructed a large two-story brick building on the townsite with the expectation that the structure would be used as the county court house. The building housed a bank, a hardware store, barber shop, billiard parlor, and a restaurant, all on the first floor, and the second floor housed a dance hall and opera house. The townsite also contained a hotel, a general store, two elevators, a lumber yard, an implement dealership, and a school. When Mohall won the election for location of the county seat in 1910, Greene began a steady decline that was accelerated with the construction and filling of Lake Darling in the 1930s (Renville County Old Settlers Association 1976:314-316; Larson 1978:personal communication).

Other townsites developed along the Souris, but away from the railroads between 1900 to 1910. McKinney townsite was begun in 1901 at the site of the only bridge across the stream in several miles. The townsite was platted by Peter Bertelson with the expectation that the "Wheat Line" would cross the river there. Bertelson built a general store on the site, and soon William E. Grinnell started a second store. Within a year the town included a hotel, a restaurant, a drugstore, a butcher shop, two livery stables, a lumber yard, a bank, a barber shop, a confectionary, a pool hall and blind pig, a doctor's office, and a newspaper, the "Mouse River Journal." In 1903 William J. Paff began construction of a water-powered mill on the Souris and by September, 1904, the mill was in operation. Paff's mill did a good business in the early years of operation, grinding wheat into flour for local consumption and also grinding feed for livestock. The McKinney Mill burned on May 10, 1906, was rebuilt in the same location, and continued to operate under several proprietors until 1928.

McKinney's hopes of being served by the "Wheat Line" were dashed by the catastrophic flood of 1904, when water rose to above the first story level of business in the town. The Soo Line established the town of Tolley on the upland, and by late 1905 many business buildings were being moved from McKinney to Tolley. In October 1906, the Great Northern Railway purchased the townsite from Bertelson, and surveys were run for a branch line from Antler to McKinney and on to Kenmare. The line was not built, however, and the town once again began to decline. The last store ceased operations and the post office closed at McKinney on August 15, 1916. In 1934 the mill was moved from the site and demolished, and in 1935 the Civilian Conservation Corps demolished the remaining buildings on the site in advance of the filling of Lake Darling. Visible remains of the townsite are the brick and concrete footings for the mill, several cellar depressions to the west of the mill, and the McKinney Cemetery about one-fourth mile south of the townsite. The McKinney Cemetery was listed on the National Register of Historic Places in December 1978 (Renville County Old Settlers Association 1976:537-539).

The smaller rural communities of Pleasant, Barber, Overholt, Glenn, and Questad were also established and operated during the height of the Second Boom. Pleasant townsite was established around the store of Hans Johnson, and was named for its setting. In 1903 the Stafford Post Office was moved to the Johnson store, and the little town also

had a blacksmith shop, a saloon, and a church. The town declined with the boom, and in 1909 the post office was discontinued. Barber Post Office and townsite was established in the home of a rancher named Barber in 1896, but the town began with the establishment of the store of Anton and Per Berg in the spring of 1904. At its height the town had a grocery store, livery stable, blacksmith shop, drug store, millinery shop, and a hardware store. The last business, a grocery store, closed in 1909, and in 1978 the only visible remains of the town were several cellar depressions (Renville County Old Settlers Association 1976:13-14; Servoia 1970:personal communication).

Overholt Post Office was apparently never officially established in the home of the man for whom it was named, but Joe Overholt ran a store and blacksmith shop where local settlers could pick up their mail before the Overholt Post Office was established in the home of Ole Person. Glenn Post Office was operated in the home of Fred H. Giddings from May 22, 1903 until July 14, 1906. Questad Post Office was established in the farm home of Ingwald M. Questad or December 30, 1901, and was discontinued May 31, 1909. A small store was operated in conjunction with the post office. The smaller post offices and townsites were established and run primarily as supply and communication centers for settlers during the height of the Second Boom, and none of these operations survived the end of the boom period.

The out-migration that began before 1910 has continued until the present, at least in the rural areas of the upper Souris region. The Souris valley itself lost a considerable portion of its population during the 1930s when Darling Dam was built and the Upper Souris National Wildlife Refuge was established. At that time many of the ranchers and farmers in the valley were close to destitution and welcomed the chance to sell their lands to the Bureau of Biological Research, now the U.S. Fish and Wildlife Service. The filling of Lake Darling affected a larger area than the immediate valley, however, by isolating members of social and religious groups from other members across the lake (Larson 1978:personal communication).

PREVIOUS CULTURAL RESOURCE INVESTIGATIONS

The first professionally conducted cultural resource survey in North Dakota's Souris River Basin was performed by Thad Hecker between 1937 and 1938. Hecker, then employed by the Works Progress Administration (W.P.A.), produced a map which contained the locations of numerous archaeological sites that he had found (Hecker 1938). Data from Hecker's map has been transferred to the site leads file located at the State Historical Society of North Dakota (SHSND) in Bismarck, North Dakota. This information has also been reproduced in tabular form in an extensive literature search conducted by Dr. Fred Schneider (1977). Only one of Hecker's site leads was located within the boundaries of the current survey area. The site lead reportedly occupied the N1/2, NE1/4, SE1/4 of Section 10, T.163N., R.87W. (SHSND-site lead file; Hecker 1938; Schneider 1977). This site could not be located during the course of the field inventory, but as Schneider (1977) noted, "past experience with similar records indicates that many have faulty legal descriptions, site descriptions, and/or identifications".

Seven other site leads produced by Hecker (1938) are reportedly located on the uplands immediately adjacent to the current survey boundaries. No attempt was made to relocate these potential sites during the current survey. Hecker may have returned to the Souris River Basin in 1942. An artifact collection housed at the SHSND contains numerous ceramic sherds which are labeled "Hecker - Souris Basin 1942". No other legal description for this collection is known. Though of limited value because of its generalized provenience, this collection was utilized in the comparative ceramic analysis portion of this report.

The only other professional archaeological work performed in North Dakota's Souris River Basin between Hecker's endeavors and the mid-1970s was a series of published descriptions of private artifact collections. Carved effigies were described from collections in the Velva and Carpio areas (Johnson 1955). Wood (1962) described Woodland pottery collected by local residents in the Towner and Buffalo Lake vicinities. An atlatl weight found near Kenmare was described by Metcalf and Carlson (1971). Several archeological investigations in the North Dakota portion of the Souris River basin have been conducted since 1974 under sponsorship of the St. Paul District, U.S. Army Corps of Engineers (COE). IN 1974 and 1975 Nick Franke (1975), an archaeologist employed by the SHSND, conducted a reconnaissance level survey of channel modifications on the Souris River and restricted portions of the proposed Burlington Dam Project near Minot. Eight archaeological sites were recorded in the process of this survey: three rock cairn sites, one disturbed burial mound site, three stone circle sites, and one petroform site (Franke 1975).

In 1977 Dr. Fred Schneider of the University of North Dakota Archaeological Research (UNDAR) headed a literature search of the proposed Burlington Dam Flood Control Project for the Upper Souris River Basin, North Dakota. This search was designed to identify sites, objects, or structures important to regional, state, or national

history and prehistory (Schneider 1977). This literature search included all land within the current survey boundaries. This search identified only the eight previously mentioned sites recorded by Frarke (1975) in the Minot vicinity and a total of 786 site leads reported by Hecker (1938).

Later in 1977, UNDAR conducted an extensive pedestrian survey of the Burlington Dam region from two miles north of the community of Burlington, North Dakota (T.156N., R.83W., Sec. 26) north to the Canadian border (T.164N., R.87W., Sec.28) (Good and Fox 1978). The survey route was divided into three areas based on preconceived priorities (Good and Fox 1978). Area 1 consisted primarily of the shorelines of Lake Darling and was the highest priority. Area 2 consisted of acreage downstream from Lake Darling Dam to the proposed Burlington Dam site and was second in priority. Both areas 1 and 2 were intensively surveyed by a "pedestrian visual inspection" (Good and Fox 1978:i). Area 2 was characterized by poor visibility caused by many trees, heavy grass cover, and numerous marshes. Area 3 consisted of the area from the head of Lake Darling (T.161N., R.86W., Sec. 25) to the Canadian Border (T.164N., R.87W., Sec. 28) and was the lowest priority. Area 3 was "spot-checked only" (Good and Fox 1978:i). The current project area falls in UNDAR's Area 3 (Good and Fox 1978).

UNDAR's 1977 survey resulted in the recording of forty previously unrecorded archaeological sites (Good and Fox 1978). Twenty-three sites were recorded in Area 1, eleven sites were recorded in Area 2, and six sites were recorded in Area 3. None of the sites recorded in Area 3 of the 1977 survey were located in the current project area. However, sites 32RV411 and 32RV412 are located within one-half mile of the southernmost extent of the current survey project.

Of the 40 sites recorded by UNDAR in 1977, 25 were classified as occupation sites and 15 were stone circle sites, 3 of which also contained rock cairn features. Seven of the occupation sites yielded ceramics. The occupation sites with ceramics were identified as Plains Village manifestations. They also yielded a higher percentage of Swan River Chert and tended to be found on the Northern Floodplain Forest ecozone (Good and Fox 1978). The stone circle sites were considered to be Plains Nomadic manifestations. These sites displayed higher percentages of Knife River Flint and tended to be located in the Terrace Grassland ecozone (Good and Fox 1978).

In 1978 a cultural resource inventory was conducted by UNDAR for the Reach A-3 improvement areas of the Minot Channel project along the Souris river near Logan, North Dakota. The survey produced one previously unrecorded site (Loendorf 1978).

Kurt Schweigert (1979), then of the University of North Dakota, conducted a historic inventory of a portion of the Souris River basin as part of the Burlington Dam cultural resources project. A "windshield" survey of standing structures was performed along the Souris River from T.155N., R.83W. north to the Canadian border and consequently including the present survey area. Schweigert (1979) formally recorded 14 historic sites and produced a list of 151 site leads. One of the sites recorded was 32RV438. Information on this

site was updated during the present survey. Also, Schweigert (1979) identified and recorded site 32RV439, a historic scatter, on the basis of information rendered by the owners of the property. This site could not be located during the course of the present survey. In addition, ten of Schweigert's historic site leads were formally recorded as historic sites during the 1988 survey.

Three of the sites recorded by UNDAR in 1977 (Good and Fox 1978) were tested in 1978 (Good and Hauf 1980). These three sites are all located in the vicinity of Minot, N.D. Of the three tested sites, only one (32WD407) yielded a significant amount of cultural material. Good and Hauf (1980) feel that 32WD407 represents a specialized campsite where meat processing took place.

Between August and December of 1982, Powers Elevation, conducted a pedestrian cultural resource inventory of the Lake Darling-Souris River project (Floodman et al. 1985). The investigations were conducted in three flood control project areas: the Velva Levee; the Upper Souris River above Lake Darling; and the Burlington to Minot levees and the Sawyer levee. In May and June, 1984, additional work was conducted by Powers Elevation in the Upper Souris River area. This project consisted of shovel probing selected locations within the Upper Souris National Wildlife Refuge (Floodman et al. 1985).

During these projects the archaeological survey and recording of prehistoric sites was carried out by personnel employed by Powers Elevation. The historic sites inventory and recording of standing structures was performed under subcontract by Kurt Schweigert of Cultural Research & Management, Inc. A total of 22 prehistoric sites and 66 historic sites were examined during these investigations. Sixteen of the prehistoric sites were recorded by Powers Elevation in 1982, none of which are within the present inventory area. In addition, Powers Elevation re-examined six prehistoric sites previously recorded by UNDAR in 1977. Two of these sites (32RV411 and 32RV412) are located within one-half mile of the southern extent of the current survey area. Of the 66 historic sites examined, 61 were recorded during the 1982 survey. In addition, five historic sites were re-examined which were located during the 1977 UNDAR survey.

Of the sixteen prehistoric sites recorded in 1982, thirteen were scattered lithic sites, two were buried bone sites, and one was a tipi ring site. Floodman et al. (1985) described most of these sites as having sparse amounts of material.

In addition to the report of field investigations, Floodman et al. (1985) includes a ceramic description by Dr. Ann Johnson of the Curtis Ones pottery collection. The described pottery was reported to have been collected from site 32RV429, which is located within three miles south of the current survey area. Striking similarities are noted between certain rim sherds described from the Curtis Ones collection and sherds from site 32RV212, which was recorded during the current survey. These comparisons are detailed in the ceramic analysis section of this report.

During 1983 and 1984 Powers Elevation, test-probed 25 cultural resource sites along the Upper Souris River (Floodman and Friedman 1986). Four historic sites were examined which had been originally recorded by UNDAR in 1977 (Schweigert 1979). None of these sites lie within the present survey boundaries.

Six of the prehistoric sites tested during the Powers Elevation project were recommended as meeting eligibility criteria for nomination to the National Register of Historic Places (Floodman and Friedman 1986). Three of these recommended sites were stone circle sites with subsurface components (32RV420, 32RV421, and 32RV422). These sites are located on the Terrace Grasslands within the Souris River Valley. The other three sites recommended to be National Register eligible are located next to the Souris River in the Northern Floodplains Forest ecozone. These sites, 32RV15, 32RV415, and 32RV429, all contain evidence of significant, intact, subsurface cultural deposits (Floodman and Friedman 1986).

Site 32RV15 yielded broken and burned bone, ash, and lithic artifacts associated with a single subsurface soil horizon. A Pashakoo Square-Cround Base variety of Plains Side-notched projectile point was discovered in a shovel probe at this site. Site 32RV415 yielded a radiocarbon date of 720 B.P. + 120 from a subsurface level between 43-57 cm below surface. The ceramics from this level were net-impressed and appear similar to unnamed types from Saskatchewan and Manitoba (Floodman and Friedman 1986:550). Cord-impressed pottery was found in a separate level between 27-37 cm. The plow zone and surface of site 32RV415 yielded a wide range of cultural items including a Plains side-notched projectile point and ceramics similar in style to the Extended Middle Missouri variant and the Extended Coalescent variant (Floodman and Friedman 1986:550-551).

Site 32RV429 yielded evidence of at least three stratified cultural levels. None of the cultural horizons could be C-14 dated, but the middle horizon contained ceramics believed to be associated with the Middle Missouri tradition (Floodman and Friedman 1986:551). Ceramics found on the surface of the site show affiliations with the Middle Missouri area, an unnamed ceramic type from the southern Canadian Plains, and the Mortlach aggregate wares. One sherd was also suggested to be reminiscent of either Blackduck or the Scattered Village complexes of the Knife River region. The plow zone and surface areas of the site also yielded two projectile points: one Pelican Lake and one Plains Side-notched (Floodman and Friedman 1986:551). The surface artifacts and Middle Missouri ceramics discovered in the subsurface matrix of site 32RV429 are similar to artifacts collected from the surface of site 32RV212 during the current survey. Floodman and Friedman (1986) feels that together 32RV415 and 32RV429 may be the most important prehistoric locations in the Upper Souris River valley. Both sites are probably base camps which were continuously or intermittently occupied by different cultural groups. These occupations may have occurred on a seasonal basis.

None of the four historic sites investigated during the 1983-84 testing program appear to meet eligibility criteria for nomination to the NRHP (Floodman and Friedman 1986). However, two previously

recorded sites were recommended for nomination to the NRHP: site 32RV23, the old Curtis Ones (32RV23) farmstead which was recorded during the 1982 Powers Elevation survey (Floodman et al. 1985), and the Swenson Cabin (32RV437) recorded by the UNDAR survey of 1978 (Schweigert 1979).

None of the above eight cultural resource sites recommended for nomination to the NRHP are within the current project area, but all are within 25 miles to the south and east of it. With the exception of the stone circle sites (32RV420, 32RV421, and 32RV422), all the NRHP recommended resources are within 10 miles to the south and slightly east of the present study area.

Archeological research has been conducted within the Souris River basin of southern Canada. Finnigan (1986:23) has tabulated a list of 21 cultural resource studies within the Souris River Basin of southern Saskatchewan and Manitoba between 1951 and 1986. Unfortunately, many of the reports based on these studies are not available in the United States due to their limited publication and distribution. Two of the recent major scale cultural resource inventories (Syms 1980; Finnigan 1986) have been acquired by the State Historical Society of North Dakota and are briefly discussed below.

Professional archaeological research in Canada's Souris River Basin began with the survey research of Boyd Wettlaufer. The 1950s saw a flurry of archaeological research in southeastern Saskatchewan including excavations at the Oxbow Dam site (Nero and McCorquodale 1957) and the Long Creek site (Wettlaufer and Mayer-Oakes 1960). Both of these sites are located within 50 miles north and west of the current survey area and are discussed in other portions of this report.

In the early 1970s, the Manitoba portion of the Souris River Basin became a focus of archaeological research. Perhaps the most ambitious archaeological study during that period was the Nash survey, which was conducted in the southwest Manitoba region. This investigation consisted of an intensive pedestrian survey of 36 sections randomly selected from nine townships south and west of the community of Melita, Manitoba (Syms 1980). All the sections lie within the Souris River basin drainages which encompass the Souris River, the Antler River, and Gainsborough Creek. All are located within 50 miles north and east of the present study area. This survey was performed between June and July of 1972 and May and June of 1973 (Syms 1980:6).

Sites were distributed among five topographic units: 1) Floodplain A - along the Souris River valley; 2) Floodplain B - on the Souris River floodplain, but away from the river valley; 3) Floodplain C - on floodplains of tributaries; 4) Upland A - on the plain along or near (within 120 m of the valley walls); and 5) Upland B - on the plain away from (beyond 120 m) the valley edge (Syms 1980:10). Sites were divided into four data types on the basis of area and quantity types: 1) find spots; 2) small camps; 3) villages; and 4) ceremonial sites. The formula for determining Syms' data types is quite complex (Syms 1980:11) and will not be reproduced here. One hundred thirty-one were sites reported in the Nash survey: 90 (68.7%) were find spots (those that contain six or fewer artifacts), 24 (18.3%) were camp sites, 16

(12.2%) were villages, and one (0.8%) was ceremonial (an isolated burial mound) (Syms 1980:350). Data gleaned from the report of the Nash survey (Syms 1980) is used extensively for comparative purposes throughout the present report.

The second major archaeological study conducted within the Souris River basin of southern Canada, was performed at the proposed Rafferty and Alameda reservoirs (Finnigan 1986). The proposed Rafferty Dam is located along the main channel of the Souris River immediately west and north of Estevan, Saskatchewan. All sites found within the proposed Rafferty reservoir are within 100 miles northwest of the current survey area. The proposed Alameda Dam is located on the Mouse Mountain Creek, a tributary of the Souris River, approximately 40 miles east of Estevan. All sites found within the Alameda reservoir are within 50 miles north and slightly west of the current study area.

The survey and testing programs at the proposed Rafferty reservoir were conducted during the summers of 1984 and 1986, while the proposed Alameda reservoir was surveyed briefly during 1986. A combined total of 219 heritage resources have been identified in these two areas. These resources consist of 26 historic sites, 35 buried sites, 100 stone circle sites, 35 stone circle and cairn sites, 12 cairn sites, 13 petroform sites, a burial mound, and a vision quest site (four of the sites contain more than one site type, which inflates the site count by four) (Finnigan 1986). Archaeological data concerning these cultural resources is presented in the appropriate sections of this report.

The results of the recent excavations of the Green site, located immediately south of Estevan, Saskatchewan, is also discussed in appropriate sections of this report. The Green site was excavated during 1985 and has been tentatively identified as an expression of the Mortlach aggregate (Finnigan 1988).

FIELD WORK INVENTORY

From May 11-18, June 8-13, and June 23-27, Richard Persinger, James C. Dahlberg, and John C. Whitehurst of Cultural Research & Management, Inc. conducted a Class III cultural resource survey of a portion of the Upper Souris River valley as described above (Figures 1, 3, and 4). Pedestrian transects of not more than 30 m (100 ft) were performed in a zig-zag fashion in areas where surface visibility was good. These areas included cultivated fields and pasturelands. In places where the surface visibility was limited, the transects were reduced to 15 m (50 ft) widths. In forested areas and pasturelands with heavy foliage, subsurface probing was undertaken (see below). River crossings, cutbanks, and other erosional features as well as man-made excavations were extensively examined for indications of buried cultural features. In this manner approximately 3000 acres of river bottomland were intensively inventoried. In addition to the archeological field work a geomorphological study of the project area was undertaken by Mike McFaul of LaRemie Soil Service in August and September, 1988. The procedures, field methods, and results of the geomorphology study are presented in a separate section of this report.

Conditions at the time of the survey were very good. Due to the unseasonably hot weather which resulted in drought conditions, the surface visibility was from good to excellent (70-100%) within the cultivated fields and some of the pastures. Visibility in the short-cropped grazing lands ranged from 25-60%, and in forested and riparian areas along the river and other drainage bottoms visibility ranged from 0-25%. Recent field cultivation, cutbanks, river crossings, and other erosional episodes allowed adequate examination of the project area. Seasonal weather conditions made the survey uncomfortable, as the crew was subject to high wind conditions and extreme heat stress.

Subsurface Testing

Subsurface testing was performed in areas where the ground surface visibility was obscured by dense foliage. The areas most frequently examined were the forest lines abutting the river bank, croplands which had dense vegetation, and pasturelands which were covered with grasses. Linear test alignments were placed so as to maximize coverage of each specific test area. The subsurface testing consisted of shovel probes and auger probes. Shovel probing consisted of 25x25 cm tests and was implemented only where (due to distance and access) auger probing could not be undertaken. Auger probing was accomplished by means of a mechanical, gasoline-powered auger with a six inch bit. A total of 66 test probes were excavated. These probes were excavated in 25 cm increments. The depths of the test probes ranged from 35-115 cm, depending on varying soil conditions. All excavated soils were screened through 1/4" mesh screen. No cultural materials were recovered from any of the subsurface probes.

Site Forms and Laboratory Analysis

Site forms for each site were completed following criteria established by the State Historical Society of North Dakota. Scaled site maps were prepared, and additional maps were produced to show the

location of each site within the project area.

Laboratory analysis consisted of identification and cleaning of all collected artifacts, both prehistoric and historic. Prehistoric lithic and ceramic artifacts were measured by means of metric calipers and weighed with a three beam scale. When applicable, material types were identified and functions of the artifacts were determined. When possible, the process for the manufacture of the artifacts was identified and the cultural affiliation was determined. All collected artifacts were photographed, and the photographs were appended to the site and isolated find forms.

All artifacts are considered to be owned by the surface owner of the property where they were found. All artifacts will be returned to the owner after the present project is completed. If the surface owners choose not to receive the artifacts, the artifacts will be curated at the State Historical Society of North Dakota, Bismarck. Analysis of the prehistoric artifacts from various sites are presented in separate sections of this report.

RESULTS OF FIELD SURVEY

The following is a brief description and evaluation of the National Register Criteria for eligibility of the prehistoric and historic sites recorded during the present cultural inventory:

Prehistoric Sites

32RV201

This is a small scatter of bone, fire-cracked rock, and lithic material located in a cultivated field. The site is situated just south of a dry exbow meander along the right bank of the Souris River. Cultural materials observed on the site were one primary quartzite flake, two tertiary quartzite flakes, two tertiary Knife River flint flakes (one with retouch along the lateral margins), and one Knife River flint side-notched projectile point (probably Besant). The site appears to retain poor physical integrity due to repeated cultivation. However, intact cultural deposits may exist beneath the plow zone or in the uncultivated, forested land between the field and the river.

Available historical sources about Renville County and North Dakota do not indicate possible historical significance for this property (Andreas 1884; Ogle 1900; Crawford 1931; Lounsherry 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976). This site is an isolated prehistoric scatter which has no known physical or historical associations with other properties which together might be considered eligible for nomination to the National Register as an historic district or as a thematic group.

Site significance and potential eligibility for nomination to the National Register of Historic Places cannot be determined prior to subsurface testing. Other areas near this site have exhibited deeply buried, intact cultural components, and this site therefore might retain undisturbed materials which could yield information important in prehistory. This site is therefore recommended to be potentially eligible for nomination to the National Register of Historic Places under Criterion D pending completion of subsurface testing.

32RV202

This is a small, dense scatter of lithic material, bone and fire-cracked rock. The site is located in a cultivated field near the right bank of the Souris River. The site area overlooks what appears to be a cut-off river meander located immediately to the south. Another meander scar is apparent just to the north of the site area. At least 100 flakes and fragments of shatter were observed at this site. Material types represented include Knife River flint, quartzite, chert (Swan River and other) and jasper. A large Pelican Lake type point and a smaller side notched point (Besant) were collected. Fire-cracked rock and bone fragments were noted throughout the site area. The site appears to retain

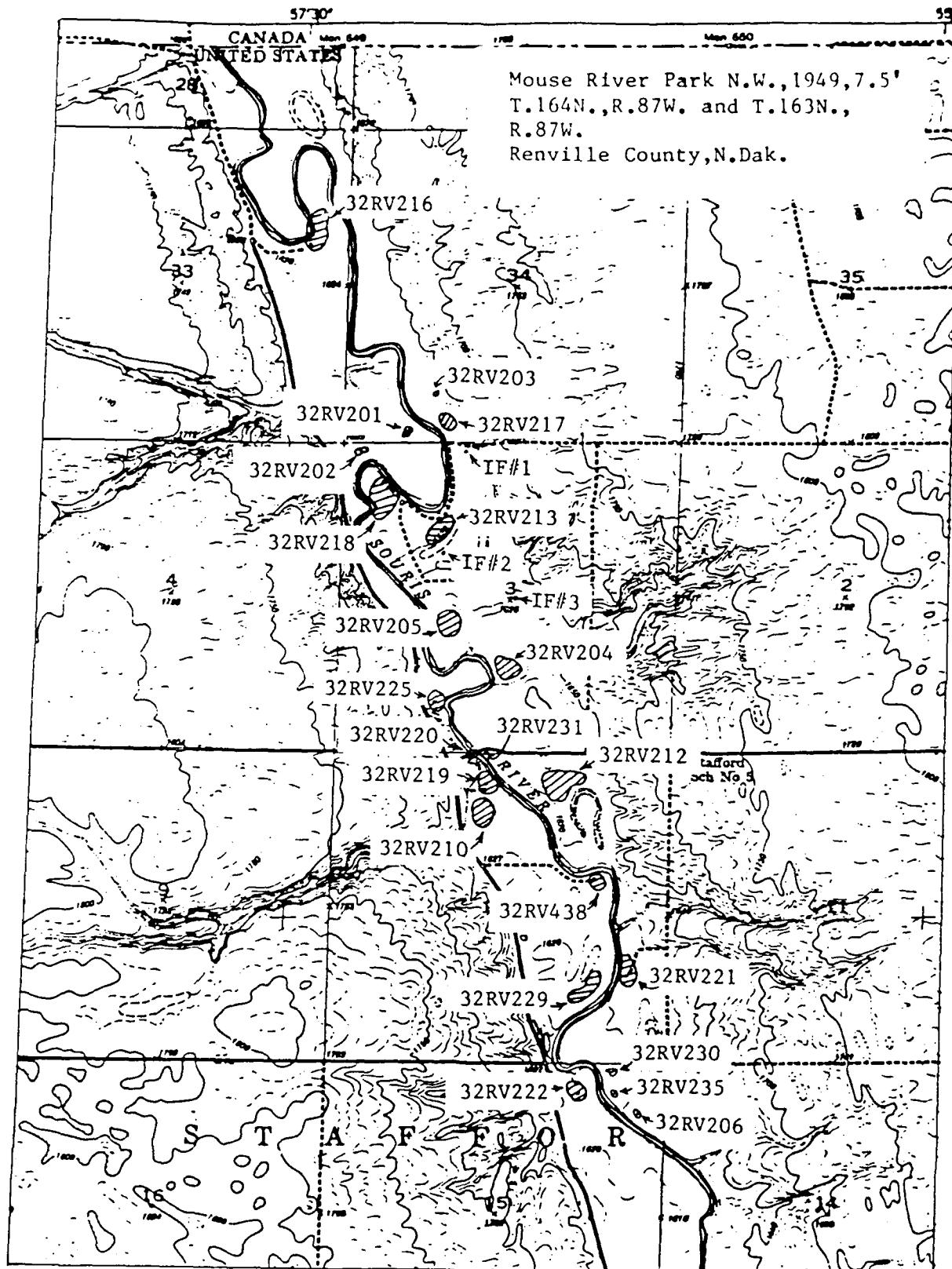


Figure 5. Upper Souris River Site Locations.

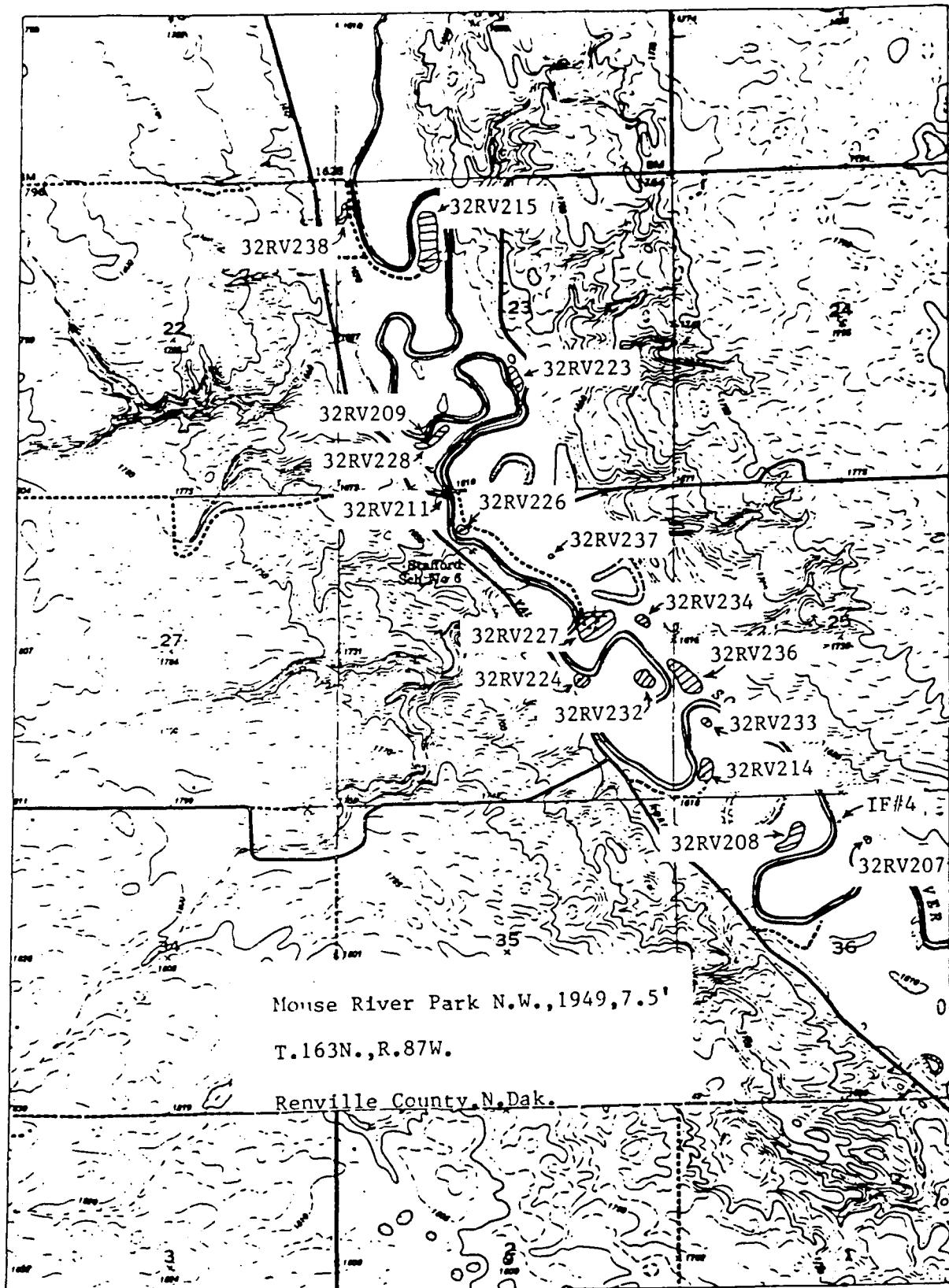


Figure 6. Upper Souris River Site Locations.

poor physical integrity due to repeated cultivation. However, undisturbed cultural deposits may exist below the modern plowzone. Adjacent, uncultivated pasture land may also contain undisturbed cultural deposits; existence of cultural materials in adjacent land would expand the site area.

Available historical sources about Renville County and North Dakota do not indicate possible historical significance for this property (Andreas 1884; Ogle 1900; Crawford 1931; Lounsberry 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976). This site is an isolated prehistoric scatter which has no known physical or historical associations with other properties which together might be considered eligible for nomination to the National Register as an historic district or as a thematic group.

Site significance and potential eligibility for nomination to the National Register of Historic Places cannot be determined prior to subsurface testing. Other areas near this site have exhibited deeply buried, intact cultural components, and this site therefore might retain undisturbed materials which could yield information important in prehistory. This site is therefore recommended to be potentially eligible for nomination to the National Register of Historic Places under Criterion D pending completion of subsurface testing.

32RV203

This is a small, sparse scatter of lithic material located in a cultivated field. The site is situated near the base of the first terrace slope along the left bank of the Souris River. An occupied farmstead (32RV217) is located just south of the site area. Observed on the site were one agate end scraper, one Swan River chert flake, a white chert core fragment, and two tertiary quartzite flakes. The site appears to retain poor physical integrity due to repeated cultivation. However, intact cultural deposits may exist beneath the plow zone.

Available historical sources about Renville County and North Dakota do not indicate possible historical significance for this property (Andreas 1884; Ogle 1900; Crawford 1931; Lounsberry 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976). This site appears to be an isolated prehistoric scatter which has no known physical or historical associations with other properties which together might be considered eligible for nomination to the National Register as an historic district or as a thematic group.

Site significance and potential eligibility for nomination to the National Register of Historic Places cannot be determined prior to subsurface testing. Other areas near this site have exhibited deeply buried, intact cultural components, and this site therefore might retain undisturbed materials which could yield information important in prehistory. This site is therefore recommended to be potentially eligible for nomination to the National Register of

Historic Places under Criterion D pending completion of subsurface testing.

32RV204

This is a large, sparse scatter of lithic material, bone and fire cracked rock. The site area is located in a level, cultivated field adjacent to the left bank of the Souris River. A small drainage system is located immediately east of the site area. One white quartzite biface and about 15 flakes and core fragments were observed. Material types represented include chert, quartzite, and agate. Fire-cracked rock and bone fragments were noted throughout the site area. The site appears to retain poor physical integrity due to repeated cultivation. However, undisturbed cultural deposits may exist below the plow zone or in the uncultivated, wooded area adjacent to the river.

Available historical sources about Renville County and North Dakota do not indicate possible historical significance for this property (Andreas 1884; Ogle 1900; Crawford 1931; Lounsherry 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976). This site appears to be an isolated prehistoric scatter which has no known physical or historical associations with other properties which together might be considered eligible for nomination to the National Register as an historic district or as a thematic group.

Site significance and potential eligibility for nomination to the National Register of Historic Places cannot be determined prior to subsurface testing. Other areas near this site have exhibited deeply buried, intact cultural components, and this site therefore might retain undisturbed materials which could yield information important in prehistory. This site is therefore recommended to be potentially eligible for nomination to the National Register of Historic Places under Criterion D pending completion of subsurface testing.

32RV205

This is a large scatter of lithic material, fire cracked-rock, ceramics and bone located in a gently rolling cultivated field. The site is situated next to the left bank of the Souris River adjacent to a large, wooded bend in the river. Two areas of artifact concentrations were noted on areas of higher ground within the site area. Several dozen flakes and fragments of shatter and two small, side-notched projectile point bases were observed. Six ceramic fragments were also noted at this site. Fire-cracked rock and bone fragments were scattered throughout the apparent site area. Material types represented include Knife River flint, chert, quartzite, agate and porcellanite. The observed site area appears to have poor physical integrity due to repeated cultivation. However, the uncultivated, wooded area adjacent to the river retains excellent integrity and may contain undisturbed cultural deposits. Intact deposits may also exist below the disturbed plow zone.

Available historical sources about Renville County and North Dakota do not indicate possible historical significance for this property (Andreas 1884; Ogle 1900; Crawford 1931; Lounsberry 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976). This site appears to be an isolated prehistoric scatter which has no known physical or historical associations with other properties which together might be considered eligible for nomination to the National Register as an historic district or as a thematic group.

Site significance and potential eligibility for nomination to the National Register of Historic Places cannot be determined prior to subsurface testing. Other areas near this site have exhibited deeply buried, intact cultural components, and this site therefore might retain undisturbed materials which could yield information important in prehistory. This site is therefore recommended to be potentially eligible for nomination to the National Register of Historic Places under Criterion D pending completion of subsurface testing.

32RV206

This is a small ceramic and lithic scatter located adjacent to the left bank of the Souris River. The entire apparent site area is level and currently under cultivation. A concentration of eight ceramic sherds was noted near the north end of the site area. Cultural materials observed on the site were eight ceramic sherds, one Knife River flint tertiary flake, one Knife River flint biface and one tertiary chert flake. The site apparently retains poor physical integrity due to repeated cultivation. However, undisturbed cultural deposits may exist below the plow zone or in the uncultivated, wooded area adjacent to the river. This site appears to be an isolated prehistoric scatter which has no known physical or historical associations with other properties which together might be considered eligible for nomination to the National Register as an historic district or as a thematic group. Site significance and potential eligibility for nomination to the National Register of Historic Places cannot be determined prior to subsurface testing. Other areas near this site have exhibited deeply buried, intact cultural components, and this site therefore might retain undisturbed materials which could yield information important in prehistory.

Available historical sources about Renville County and North Dakota do not indicate possible historical significance for this property (Andreas 1884; Ogle 1900; Crawford 1931; Lounsberry 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976).

This site is therefore recommended to be potentially eligible for nomination to the National Register of Historic Places under Criterion D pending completion of subsurface testing.

32RV207

This is a small scatter of lithic material, bone and fire-cracked rock located in a cultivated field. A quartzite core and dense concentration of associated flakes was observed near the northern limits of the site boundary. Fire-cracked rock and bone fragments were sparsely scattered throughout the site area. Preliminary observations suggest that lithic reduction was the primary activity occurring at this locality. The site is situated near the neck of an oxbow meander along the left bank of the Souris River. It lies within the floodplain although terrace sideslopes occur just to the east of the site area. Observed on the site were one pink quartzite core and 11 associated flakes, one Swan River chert core fragment, one porcellanite core fragment, one Swan River chert tertiary flake, and one Knife River flint biface fragment. The site area appears to retain poor physical integrity due to repeated cultivation. However, undisturbed cultural deposits may exist below the modern plowzone.

Available historical sources about Renville County and North Dakota do not indicate possible historical significance for this property (Andreas 1884; Ogle 1900; Crawford 1931; Lounsherry 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976). This isolated prehistoric scatter has no known physical or historical associations with other properties which together might be considered eligible for nomination to the National Register as an historic district or as a thematic group.

Site significance and potential eligibility for nomination to the National Register of Historic Places cannot be determined prior to subsurface testing. Other areas near this site have exhibited deeply buried, intact cultural components, and this site therefore might retain undisturbed materials which could yield information important in prehistory. This site is therefore recommended to be potentially eligible for nomination to the National Register of Historic Places under Criterion D pending completion of subsurface testing.

32RV208

This is a large, sparse scatter of lithic material, fire-cracked rock and bone fragments located in a cultivated field. No discernable areas of artifact concentration were observed within the site area. The site is situated on the level floodplain along the right bank of the Souris River. Densely wooded areas lie to the east and south of the site and a large, cut-off oxbow meander is located just to the northwest. Observed on the site were eleven flakes (Swan River chert, Knife River flint, quartzite, and chert), one ceramic body sherd and one projectile point. The projectile point appears to be an example of the Carmichael Wide-Eared variety of the Avonlea type. The projectile point was collected. The site area appears to retain poor physical integrity due to repeated cultivation. However, undisturbed cultural deposits may exist below the modern plow zone. The unculti-

vated, wooded area adjacent to the river retains excellent integrity and may also contain intact cultural deposits.

Available historical sources about Renville County and North Dakota do not indicate possible historical significance for this property (Andreas 1884; Ogle 1900; Crawford 1931; Lounsberry 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976). This site appears to be an isolated prehistoric scatter which has no known physical or historical associations with other properties which together might be considered eligible for nomination to the National Register as an historic district or as a thematic group.

Site significance and potential eligibility for nomination to the National Register of Historic Places cannot be determined prior to subsurface testing. Other areas near this site have exhibited deeply buried, intact cultural components, and this site therefore might retain undisturbed materials which could yield information important in prehistory. This site is therefore recommended to be potentially eligible for nomination to the National Register of Historic Places under Criterion D pending completion of subsurface testing.

32RV209

This is a multiple-component, stratified prehistoric site located in a cutbank along the right bank of the Souris River. The site consists of two cultural horizons eroding from distinct paleosols approximately 123-131 cm and 150-171 cm below the current ground surface. Both cultural lenses extend laterally for at least 2.25 meters (the extent of the cutbank exposure). Bone fragments (some burned), flakes, charcoal, fire-cracked rock and an end scraper were noted in these cultural levels. No cultural materials were noted on the surface at this locality. Observed within the cultural lenses were one secondary chert flake, one tertiary Knife River flint flake, one tertiary quartzite flake and one Knife River flint end scraper.

An unknown portion of the site has been destroyed by lateral erosional activity caused by cutting of the Souris River. However, buried cultural material remains intact as indicated by examination of the cutbank exposure. The integrity for an unknown portion of the site area appears to be excellent.

Available historical sources about Renville County and North Dakota do not indicate possible historical significance for this property (Andreas 1884; Ogle 1900; Crawford 1931; Lounsberry 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976). This site has no known physical or historical associations with other properties which together might be considered eligible for nomination to the National Register as an historic district or as a thematic group.

Preliminary investigation suggests that this site is potentially

significant because it contains stratified, intact cultural materials which are likely to yield information important in prehistory. The extent and cultural/temporal affiliations of the site can not be determined without subsurface testing of the site, however. This site is therefore recommended to be potentially eligible for nomination to the National Register of Historic Places under Criterion D pending completion of subsurface testing.

32RV210

This is a large, sparse scatter of lithic debris and bone fragments located in a cultivated field. A small concentration of several flakes was observed near the southeast boundary of the site area. The site area lies just south of a major drainage leading east into the Souris River. The site is located on the level floodplain along the right bank of the river. Observed on the site were eight flakes (Swan River chert, quartzite, porcellanite and Knife River flint) and one utilized flake of Knife River flint. The site area has apparently retained poor physical integrity due to repeated cultivation. However, undisturbed cultural deposits may exist below the modern plow zone.

Available historical sources about Renville County and North Dakota do not indicate possible historical significance for this property (Andreas 1884; Ogle 1900; Crawford 1931; Lounsberry 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976). This site appears to be an isolated prehistoric scatter which has no known physical or historical associations with other properties which together might be considered eligible for nomination to the National Register as an historic district or as a thematic group.

Site significance and potential eligibility for nomination to the National Register of Historic Places cannot be determined prior to subsurface testing. Other areas near this site have exhibited deeply buried, intact cultural components, and this site therefore might retain undisturbed materials which could yield information important in prehistory. This site is therefore recommended to be potentially eligible for nomination to the National Register of Historic Places under Criterion D pending completion of subsurface testing.

32RV212

This is a large, dense scatter of lithic material, bone and fire cracked rock located in a cultivated field along the left bank of the Souris River. A large cut-off oxbow is located immediately to the southeast of the site area. Observed on the site were a small, side-notched projectile point of silicified wood, dozens of Middle Missouri type ceramic sherds and hundreds of flakes, cores and fragments of shatter. Dozens of bison teeth were observed scattered across the site area. Material types represented include chert, porcellanite, Knife River flint, agate and quartzite. A large collection was made at this site because of anticipated imminent damage to artifacts due to incessant

cultivation. The apparent site area has been cultivated for the past 15 years. Physical integrity in this area appears to be poor. However, wooded, uncultivated areas adjacent to the site area have excellent potential for containing buried, intact cultural deposits.

Available historical sources about Renville County and North Dakota do not indicate possible historical significance for this property (Andreas 1884; Ogle 1900; Crawford 1931; Lounsberry 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976). This site appears to be an isolated prehistoric scatter which has no known physical or historical associations with other properties which together might be considered eligible for nomination to the National Register as an historic district or as a thematic group.

Site significance and potential eligibility for nomination to the National Register of Historic Places cannot be determined prior to subsurface testing. Other areas near this site have exhibited deeply buried, intact cultural components, and this site therefore might retain undisturbed materials which could yield information important in prehistory. This site is therefore recommended to be potentially eligible for nomination to the National Register of Historic Places under Criterion D pending completion of subsurface testing.

32RV213

This is a large, sparse scatter of lithic material, ceramics, fire-cracked rock and bone fragments located in a cultivated field. The site occupies an area along the left bank of the Souris River between a sharp bend and a cut-off oxbow just to the southeast. Nine ceramic sherds, one small side-notched Knife River flint projectile point and 8 flakes were observed at the site. Material types represented include Knife River flint, quartzite and chert. The site appears to retain poor integrity due to years of cultivation and livestock activity. However, buried cultural deposits may be located beneath the plow zone.

Available historical sources about Renville County and North Dakota do not indicate possible historical significance for this property (Andreas 1884; Ogle 1900; Crawford 1931; Lounsberry 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976). This site appears to be an isolated prehistoric scatter which has no known physical or historical associations with other properties which together might be considered eligible for nomination to the National Register as an historic district or as a thematic group.

Site significance and potential eligibility for nomination to the National Register of Historic Places cannot be determined prior to subsurface testing. Other areas near this site have exhibited deeply buried, intact cultural components, and this site therefore might retain undisturbed materials which could yield information important in prehistory. This site is therefore recommended to be

potentially eligible for nomination to the National Register of Historic Places under Criterion D pending completion of subsurface testing.

32RV229

This is a large scatter of bone, fire-cracked rock, ceramics and lithic material located in a cultivated field. A concentration of fire-cracked rock and bone was observed near the center of the locality. The site is situated just north of a sharp meander along the right bank of the Souris River. Observed on the site were 15 ceramic sherds, two quartzite core fragments, one Knife River flint core fragment, three tertiary chert flakes, two primary Knife River flint flakes and one quartzite biface. The site area appears to have retained poor physical integrity due to repeated cultivation. However, undisturbed cultural deposits may exist below the modern plow zone. The uncultivated, wooded area adjacent to the river retains excellent integrity and may also contain intact cultural deposits.

Available historical sources about Renville County and North Dakota do not indicate possible historical significance for this property (Andreas 1884; Ogle 1900; Crawford 1931; Lounsherry 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976). This isolated prehistoric scatter has no known physical or historical associations with other properties which together might be considered eligible for nomination to the National Register as an historic district or as a thematic group.

Site significance and potential eligibility for nomination to the National Register of Historic Places cannot be determined prior to subsurface testing. Other areas near this site have exhibited deeply buried, intact cultural components, and this site therefore might retain undisturbed materials which could yield information important in prehistory. This site is therefore recommended to be potentially eligible for nomination to the National Register of Historic Places under Criterion D pending completion of subsurface testing.

32RV230

This is a medium-sized, sparse scatter of ceramics, lithic material, fire-cracked rock and bone fragments. It is located in a level, cultivated field along the left bank of the Souris River. A wooded section line forms the northern boundary of the site area. A large swale is located about 200 meters to the northeast of the site. Ceramics make up 90% of the cultural material observed at this site and 13 sherds were collected. Five flakes, and a unifacial tool were also observed at the site. Material types represented include Knife River flint and chert. The site appears to have retained poor physical integrity due to years of repeated cultivation. However, intact cultural deposits may be located in the uncultivated area to the north or beneath the plow zone.

Available historical sources about Renville County and North Dakota do not indicate possible historical significance for this property (Andreas 1884; Ogle 1900; Crawford 1931; Lounsberry 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976). This site appears to be an isolated prehistoric scatter which has no known physical or historical associations with other properties which together might be considered eligible for nomination to the National Register as an historic district or as a thematic group.

Site significance and potential eligibility for nomination to the National Register of Historic Places cannot be determined prior to subsurface testing. Other areas near this site have exhibited deeply buried, intact cultural components, and this site therefore might retain undisturbed materials which could yield information important in prehistory. This site is therefore recommended to be potentially eligible for nomination to the National Register of Historic Places under Criterion D pending completion of subsurface testing.

32RV231

This is a buried bone, ash and charcoal lens exposed in a cutbank along the left bank of the Souris River. The exposure was apparently created during the construction of the roadway and associated bridge. Several bone fragments and an intact longbone were observed in association with the charcoal and ash lens at between 80 and 110 centimeters below surface. The lens extends laterally for several meters and is located beneath the forested zone immediately adjacent to the river. No ceramics or lithics were observed in association with the ash, charcoal and bone lens. The dirt work that exposed this site has destroyed an unknown percentage of the site area, but it is apparent that some of the site area remains intact. Integrity is therefore unknown for the site and will remain unknown until subsurface testing is completed.

Available historical sources about Renville County and North Dakota do not indicate possible historical significance for this property (Andreas 1884; Ogle 1900; Crawford 1931; Lounsberry 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976). This site appears to be an isolated, buried site which has no known physical or historical associations with other properties which together might be considered eligible for nomination to the National Register as an historic district or as a thematic group. The cultural affiliation and association of the site to other sites can not be determined prior to subsurface testing.

Site significance and potential eligibility for nomination to the National Register of Historic Places cannot be determined prior to subsurface testing. Other areas near this site have exhibited deeply buried, intact cultural components, and this site therefore might retain undisturbed materials which could yield information

important in prehistory. This site is therefore recommended to be potentially eligible for nomination to the National Register of Historic Places under Criterion D and possibly under Criterion C pending completion of subsurface testing.

32RV232

This is a large scatter of Bison bone and lithic material located in a cultivated field. A distinct concentration of large, shattered bison bones was observed on a small rise in the field near the southeast boundary of the site area. A groundstone axe was collected in the vicinity of this bone concentration. Fire cracked rock was scattered throughout the site area. The site is situated inside of a large oxbow on the right bank of the Souris River. Cultural materials observed on the site were one ground stone axe, one Swan River Chert tertiary flake, one clear chalcedony tertiary flake, and one ceramic body sherd. The site appears to retain poor physical integrity due to repeated cultivation. However, undisturbed cultural deposits may exist below the modern plow zone. The uncultivated, wooded area adjacent to the river retains excellent integrity and may also contain intact cultural deposits.

Available historical sources about Renville County and North Dakota do not indicate possible historical significance for this property (Andreas 1884; Ogle 1900; Crawford 1931; Lounsherry 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976). This site appears to be an isolated prehistoric scatter which has no known physical or historical associations with other properties which together might be considered eligible for nomination to the National Register as an historic district or as a thematic group.

Site significance and potential eligibility for nomination to the National Register of Historic Places cannot be determined prior to subsurface testing. Other areas near this site have exhibited deeply buried, intact cultural components, and this site therefore might retain undisturbed materials which could yield information important in prehistory. This site is therefore recommended to be potentially eligible for nomination to the National Register of Historic Places under Criterion D pending completion of subsurface testing.

32RV233

This is a small, sparse scatter of fire-cracked rock, bone and lithic material located in a cultivated field. The site is situated on the inside of a sharp bend along the right bank of the Souris River. The locality is surrounded on three sides by densely wooded river frontage. Observed on the site were one tertiary quartzite flake and one porcellanite Plains Village side-notched projectile point. The site area has apparently retained poor physical integrity due to repeated cultivation. However, undisturbed cultural deposits may exist below the modern plow zone. The uncultivated, wooded areas adjacent to the river retain

excellent integrity and may also contain intact cultural deposits.

Available historical sources about Renville County and North Dakota do not indicate possible historical significance for this property (Andreas 1884; Ogle 1900; Crawford 1931; Lounsberry 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976). This site appears to be an isolated prehistoric scatter which has no known physical or historical associations with other properties which together might be considered eligible for nomination to the National Register as an historic district or as a thematic group.

Site significance and potential eligibility for nomination to the National Register of Historic Places cannot be determined prior to subsurface testing. Other areas near this site have exhibited deeply buried, intact cultural components, and this site therefore might retain undisturbed materials which could yield information important in prehistory. This site is therefore recommended to be potentially eligible for nomination to the National Register of Historic Places under Criterion D pending completion of subsurface testing.

32RV236

This is a large scatter of lithic and ceramic debris located in a cultivated field. The site is situated adjacent to the neck of a large oxbow along the left bank of the Souris River. A concentration of bone fragments and teeth (probably bison) was observed near the northwest boundary of the site area. Another distinct concentration of lithic debris was noted near the southeast boundary of the site area. Bone and fire-cracked rock fragments were scattered throughout the site area. Cultural materials observed on the site were one brown chert biface fragment, one Swan River chert biface fragment, one quartzite biface fragment, 17 flakes (Knife River flint, Swan River chert, chert, quartzite and chalcedony) and one undecorated body sherd. No temporally diagnostic artifacts were observed at this site. The site area appears to retain poor physical integrity due to repeated cultivation. However, undisturbed cultural deposits may exist below the modern plow zone. The uncultivated, wooded area adjacent to the river retains excellent integrity and may also contain intact cultural deposits.

Available historical sources about Renville County and North Dakota do not indicate possible historical significance for this property (Andreas 1884; Ogle 1900; Crawford 1931; Lounsberry 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976). This site appears to be an isolated prehistoric scatter which has no known physical or historical associations with other properties which together might be considered eligible for nomination to the National Register as an historic district or as a thematic group.

Site significance and potential eligibility for nomination to the National Register of Historic Places cannot be determined prior to

subsurface testing. Other areas near this site have exhibited deeply buried, intact cultural components, and this site therefore might retain undisturbed materials which could yield information important in prehistory. This site is therefore recommended to be potentially eligible for nomination to the National Register of Historic Places under Criterion D pending completion of subsurface testing.

32RV237

This site consists of a basin-shaped hearth feature and numerous bison bone fragments and teeth eroding out of both walls of a large drainage ditch. The hearth feature is located 21 centimeters below surface and measures 30 cm wide by 19 cm deep. A distinct 2-3 cm ash lens was observed overlying an area of orange, burned earth. Some small charcoal fragments were noted within the feature. A fractured bison longbone was observed in the opposite wall of the ditch directly across from the hearth feature. Numerous other bone fragments were eroding out of the ditch within the apparent site area at the 20 cm level. The site area lies within the forested floodplain along the left bank of the Souris River. No lithic or ceramic materials were observed in association with the hearth feature and bone scatter.

An undetermined portion of the site area has been destroyed during the construction of the drainage ditch. However, intact cultural deposits appear to lie underneath the undisturbed woodlands adjacent to the hearth exposure.

Available historical sources about Renville County and North Dakota do not indicate possible historical significance for this property (Andreas 1884; Ogle 1900; Crawford 1931; Lounsberry 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976). This site appears to be an isolated, buried prehistoric occupation which has no known physical or historical associations with other properties which together might be considered eligible for nomination to the National Register as an historic district or as a thematic group.

Preliminary examination of this site suggests that undisturbed cultural deposits may exist at this locality. Site significance and potential eligibility for nomination to the National Register of Historic Places cannot be determined prior to subsurface testing. Other areas near this site have exhibited deeply buried, intact cultural components, and this site therefore might retain undisturbed materials which could yield information important in prehistory. This site is therefore recommended to be potentially eligible for nomination to the National Register of Historic Places under Criterion D pending completion of subsurface testing.

Four isolated prehistoric artifacts were also recorded during the course of the 1988 survey. These are described below:

CRM-276-IF-1

Isolate CRM-276-IF-1 is located in the NW/NE/MW 1/4 of Section 3, T.163N., R.87W. The isolate consisted of a single Knife River flint tertiary flake exhibiting no evidence of utilization. It was located in a cultivated field that had recently been turned over. The artifact was situated at an elevation of 495 meters approximately 90 meters east of the Souris River channel. No further work is recommended at this location.

CRM-276-IF-2

Isolate CRM-276-IF-2 is located in the NW/SE/NW 1/4 of Section 3, T.163N., R.87W. The isolate consists of a single Swan River Chert tertiary flake exhibiting no evidence of utilization. It was located in a recently cultivated field at an elevation of 493 meters. The area lies within an abandoned oxbow approximately 244 meters east of the Souris River channel. No further work is recommended at this location.

CRM-276-IF-3

Isolate CRM-276-IF-3 is located in the SW/SW/NE 1/4 of Section 3, T.163N., R.87W. It consists of a single Knife River flint tertiary flake exhibiting no evidence of utilization. It was located in a cultivated field at an elevation of 497 meters. The area lies adjacent to the escarpment toe approximately 335 meters east of the Souris River channel. No further work is recommended at this location.

CRM-276-IF-4

Isolate CRM-276-IF-4 is located in the NE/NE/NW 1/4 of Section 36, T.163N., R.87W. The artifact consists of a large pink quartzite core exhibiting the removal of several decortication flakes. It was located in a cultivated field at an elevation of 492 meters. The area lies along the left bank of the Souris River approximately 40 meters from the current river channel. No further work is recommended at this location.

Historic Sites

32RV211

This is a modern, reinforced concrete bridge spanning the Souris River. It is set on wooden pilings and has wooden side rails. The remains of several metal and concrete pilings were observed under the bridge. No cultural materials were observed other than remains of concrete and wooden bridge pilings from former bridges. The present bridge is in excellent condition.

Available historical sources about North Dakota and Renville County do not indicate possible historical significance for this property (Andreas 1884; Ogle 1900; Crawford 1931; Lounsberry 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976). This bridge does not manifest

distinctive characteristics of a type, period, or method of construction which might be considered eligible for nomination to the National Register. It does not represent the work of a master, and it does not exhibit high artistic values. This modern, simple bridge has no known physical or historical associations with other properties which together might be considered eligible for nomination to the National Register as an historic district or as a thematic group. Physical evidence has not been observed on this site which might indicate a likelihood of the site to yield information important in history or prehistory, and historical sources have not indicated a potential for the site to contain information not evident from surface examination. In addition, the physical integrity of the site has been compromised by surface disturbance during apparent repeated bridge reconstruction episodes.

This site is therefore recommended to be not eligible for nomination to the National Register of Historic Places under any of the Criteria.

32RV214

This is a large abandoned farmstead consisting of a two-story frame house, a pump-jack, an outhouse, a pole barn, a metal covered storage building, a frame animal shelter and a frame machine shop. The pole-barn, wood frame animal shelter and metal covered storage building are still in use. The site is situated within the wooded floodplain along the right bank of the Souris River. A cut-off oxbow meander is located just to the southeast of the site area. Cultural materials observed on site were stoves, chairs, beds, lanterns, a seeder, bottles, cans, a rolling pin, a cup, wire, portable saw mill and a wide variety of domestic and agricultural items. The main house and outhouse retain fair to good integrity. The other structures retain good to excellent integrity.

This property was homesteaded by Hannah Johnson in 1904. Subsequent owners have been Federal Farm Mortgage Corp. (1943), D. & Mary Newman (1946), Roy J. & Dagney Foss (1954), (1955), and Dagney Foss (1986). Available biographical and historical sources do not indicate possible historical significance for any of these persons or for the site area (Ogle 1900; Crawford 1931; Lounsberry 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976). None of the buildings on this property manifest distinctive characteristics of a type, period, or method of construction which might be considered eligible for nomination to the National Register. This property does not represent the work of a master, nor does it exhibit high artistic values. This site is an isolated historic farmstead which has no known physical or historical associations with other properties which together might be considered eligible for nomination to the National Register as an historic district or as a thematic group. Physical evidence has not been observed on this site which might indicate a likelihood of the site to yield information important in history or prehistory, and historical sources have not

indicated a potential for the site to contain information not evident from surface examination.

This site is therefore recommended to be not eligible for nomination to the National Register of Historic Places under any of the Criteria.

32RV215

This is a large farm consisting of an older, two story frame house, a modern frame dwelling, a large frame barn, two wells, a large metal quonset, a metal machine shop, a pole barn, two garages and several frame storage buildings. It is located on the inside of a sharp bend along the right bank of the Souris River. An elevated dike system has been constructed around the farmstead to prevent flooding during periods of high water. Observed on the site were trucks, tractors, cultivator, metal barrels and other misc. items usually associated with a modern farming operation. This is a very well kept place with little trash observed. All of the buildings at this farmstead are in good to excellent condition.

A Receiver Receipt was issued to Christopher Wakelam in 1904 and a patent to him in 1906. Subsequent owners have been Walter Manning (1923), Mabel Manning (1924), Alice Wakelam (1933), Harvey Emmel (1936), State Bank of Kenmare (1937), State of North Dakota (1939), William Clifford (1939), Henry C. Hanson (1942), Harvey Emmel (1944), Herbert Emmel (1944), (1959), Emmett Hanson (1945), Herbert Emmel (1966), (1970), and Dennis Emmel (1986). Available biographical and historical sources do not indicate possible historical significance for any of these persons or for the site area (Ogle 1900; Crawford 1931; Lounsbury 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976).

One of the dwellings on the site is a relatively large example of one type of Homestead Style dwelling built in the region between 1900 and 1920; this structure was built by Christopher Wakelam in 1904. This house does not appear to have sufficient architectural distinction to be eligible for the National Register under Criterion C, however. None of the other buildings on this property manifest distinctive characteristics of a type, period, or method of construction which might be considered eligible for nomination to the National Register.

This property does not represent the work of a master, and it does not possess high artistic values. This site has no known physical or historical associations with other properties which together might be considered eligible for nomination to the National Register as an historic district or as a thematic group. Physical evidence has not been observed on this site which might indicate a likelihood of the site to yield information important in history or prehistory, and historical sources have not indicated a potential for the site to contain information not evident from surface examination. In addition, the physical integrity of the

site has been degraded by construction of new structures and demolition of original structures.

This site is therefore recommended to be not eligible for nomination to the National Register of Historic Places under any of the Criteria.

32RV216

This is a recently abandoned farmstead consisting of a two-story frame house, a river gauging station, windmill, pole barn, three poured concrete foundations, a dam, an outhouse, an extensive farm machinery dump and several frame animal and storage buildings. It is located near a sharp bend along the right bank of the Souris River. Also observed on the site were horse-drawn and modern farm machinery, wooden wagon wheels, car bodies, truck bodies, Hebron bricks, glass, wire, etc. All observed items are consistent with post-1920 farming occupation. All of the structures at this farmstead are in fair to good condition. The site retains good integrity.

This property was homesteaded by William Harkness in 1896. Subsequent owners were: Annie Harkness (1939), Elmer Harkness (1949), Brian G. Eriknoen (1985), Citizens State Bank (1986). Available biographical and historical sources do not indicate possible historical significance for any of these persons or for the site (Ogle 1900; Crawford 1931; Lounsberry 1917; Robinson 1966. Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976).

None of the buildings on this property manifest distinctive characteristics of a type, period, or method of construction which might be considered eligible for nomination to the National Register. This property does not represent the work of a master, and it does not exhibit high artistic values. This site is an isolated historic farmstead which has no known physical or historical associations with other properties which together might be considered eligible for nomination to the National Register as an historic district or as a thematic group. Physical evidence has not been observed on this site which might indicate a likelihood of the site to yield information important in history or prehistory, and historical sources have not indicated a potential for the site to contain information not evident from surface examination.

This site is therefore recommended to be not eligible for nomination to the National Register of Historic Places under any of the Criteria.

32RV217

This is an occupied farmstead consisting of a two-story frame house, a well, an outhouse, a chicken coop, three metal covered storage buildings, and several frame animal and storage buildings. An earthen and stone dike protects the farmstead during periods of

high water. The site is located on a narrow section of floodplain adjacent to the left bank of the Souris River. Cultural materials observed on the site were glass, wire, ceramics, steel traps, farm machinery, and quantities of recent trash. This site retains poor integrity. Most of the buildings have been moved in and are in poor condition.

A Receiver's Receipt was issued to Sykes Bryant on March 9, 1904, and Bryant received patent to the property on December 30, 1904. Subsequent owners have been F.A. Brown (1904), Byron Mott (1904), John Bettendorf (1925), Ernest Mott (1943). Byron Mott homesteaded in Saskatchewan, and in 1896 he homesteaded in the Souris Valley apparently at a location other than this site (Renville County Old Settler's Association 1976:769). Available biographical and historical sources do not indicate possible historical significance for any of these persons or the site area (Ogle 1900; Crawford 1931; Lounsberry 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976).

None of the buildings on this property manifest distinctive characteristics of a type, period, or method of construction which might be considered eligible for nomination to the National Register. This property does not represent the work of a master, and it does not exhibit high artistic values. This site is an isolated historic farmstead which has no known physical or historical associations with other properties which together might be considered eligible for nomination to the National Register as an historic district or as a thematic group. Physical evidence has not been observed on this site which might indicate a likelihood of the site to yield information important in history or prehistory, and historical sources have not indicated a potential for the site to contain information not evident from surface examination. In addition, the physical integrity of the site has been compromised by cultivation of most of the site area.

This site therefore is recommended to be not eligible for nomination to the National Register of Historic Places under any of the Criteria.

32RV218

This site is an abandoned farmstead with a large two-story frame dwelling, a large barn, a metal storage building, a metal grain bin and seven frame animal shelters. A large variety of horse drawn and modern farm machinery was observed at the farmstead. The site is located inside a large meander along the left bank of the Souris River. Cultural materials observed on site include combines, a cornpicker, tractor, trucks, oil tank, cultivators, feed grinder, seeders, organ, refuse machine parts and domestic refuse. All items are consistent with a post-1930 farming occupation, and the site remains in occasional use for farming operations. Buildings are in fair to poor condition, and the site does not appear to have been disturbed after it was abandoned. The site therefore has fair condition.

Available historical sources about Renville County and North Dakota do not indicate possible historical significance for this property (Andreas 1884; Ogle 1900; Crawford 1931; Lounsberry 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976). This property was homesteaded by Byron Mott in 1903. Subsequent owners were Lawrence Mott (1950) and Charles J. Heringer (1980). Available biographical and historical sources do not indicate possible historical significance for any of these persons (Ogle 1900; Crawford 1931; Lounsberry 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976).

None of the buildings on this property manifest distinctive characteristics of a type, period, or method of construction which might be considered eligible for nomination to the National Register. This property does not represent the work of a master and does not exhibit high artistic values. This site is an isolated historic farmstead which has no known physical or historical associations with other properties which together might be considered eligible for nomination to the National Register as an historic district or as a thematic group. Physical evidence has not been observed on this site which might indicate a likelihood of the site to yield information important in history or prehistory, and historical sources have not indicated a potential for the site to contain information not evident from surface examination.

This site therefore is recommended to be not eligible for nomination to the National Register of Historic Places under any of the Criteria.

32RV219

This is an abandoned farmstead containing a large wood frame house, a large frame barn, a metal wind generator tower, two wells, a chicken coop and numerous frame animal and storage sheds. It is located along the right bank of the Souris River approx. 2.25 miles south of the Canadian border. Cultural materials observed on the site were a cultivator, wire fish trap, and very little trash. All the buildings on this farmstead are in excellent condition and in seasonal use.

This property was homesteaded by Eddie J. Johnson in 1905. Subsequent owners have been State of North Dakota (1932), and Oscar Gilbertson (1942). A local history has Oscar Gilbertson buying this property in 1945 (Renville County Old Settler's Association 1976:751). Available biographical and historical sources do not indicate possible historical significance for any of these persons nor the site area (Ogle 1900; Crawford 1931; Lounsberry 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976).

None of the buildings on this property manifest distinctive characteristics of a type, period, or method of construction which

might be considered eligible for nomination to the National Register. This property does not represent the work of a master. This property does not exhibit high artistic values. This site is an isolated historic farmstead which has no known physical or historical associations with other properties which together might be considered eligible for nomination to the National Register as an historic district or as a thematic group. Physical evidence has not been observed on this site which might indicate a likelihood of the site to yield information important in history or prehistory, and historical sources have not indicated a potential for the site to contain information not evident from surface examination.

This site is therefore recommended to be not eligible for nomination to the National Register of Historic Places under any of the Criteria.

32RV220

This is a modern metal-reinforced, poured concrete bridge over the Souris River. No cultural materials other than the bridge were observed. The bridge retains excellent integrity.

Available historical sources about Renville County and North Dakota do not indicate possible historical significance for this property (Andreas 1884; Ogle 1900; Crawford 1931; Lounsherry 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976). This bridge does not embody distinctive characteristics of a type, period or method of construction which might be considered eligible for nomination to the National Register. This property does not represent the work of a master, and it does not exhibit high artistic values. It is an isolated bridge which has no known physical or historical associations with other properties which together might be considered eligible for nomination to the National Register as an historic district or as a thematic group. Physical evidence has not been observed on this site which might indicate a likelihood of the site to yield information important in history or prehistory, and historical sources have not indicated a potential for the site to contain information not evident from surface examination.

The bridge was constructed in 1978 and does not appear to meet any criteria for exemption of the general 50-year age requirement for eligibility for the National Register. This site therefore is recommended to be not eligible for nomination to the National Register of Historic Places under any of the Criteria.

32RV221

This is an abandoned farmstead with a small one-story frame house, a wood frame garage, two outhouses and several frame animal shelters and storage sheds. The site is located next to the left bank of the Souris River. Cultural materials observed on site were concrete blocks, sheet metal, and machine parts. Most of the

buildings located at this farm are in excellent condition. The site retains excellent integrity as a post-1925 farmstead.

A Receiver's Receipt was issued to Bernard B. Greenwood in 1905 and was homesteaded in 1910. Subsequent owners were Nils Wisdahl (1908), Joseph Overdon (1913), Gladys R. Overdon (1939), Arne Benson (1944), (1945), (1959), Oliver M. Wisdahl (1960), and Helen Benson (1973), Charlene Loss (1985), Helen Benson (1986). Nils Wisdahl bought another farm near this site in 1908, where he lived until his death (Renville County Old Settler's Association 1976:785). Available historical sources about Renville County and North Dakota do not indicate possible historical significance for this property or persons associated with it (Andreas 1884; Ogle 1900; Crawford 1931; Lounsberry 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976).

None of the features on this site, nor the site as a whole, embody distinctive characteristics of a type, period, or method of construction which might be considered eligible for nomination to the National Register. This property does not represent the work of a master, and it does not possess high artistic values. This site is an isolated historic farmstead which has no known physical or historical associations with other properties which together might be considered eligible for nomination to the National Register as an historic district or as a thematic group. Physical evidence has not been observed on this site which might indicate a likelihood of the site to yield information important in history or prehistory, and historical sources have not indicated a potential for the site to contain information not evident from surface examination.

This site therefore is recommended to be not eligible for nomination to the National Register of Historic Places under any of the Criteria.

32RV222

This is a small, abandoned farmstead with a two-story wood frame house, a wood frame garage, the stone/cement walls of a large, burned dairy barn, a metal-covered pole barn and a modern metal grain bin. The pole barn and grain bin appear to still be in use. The site is located on an elevated knoll near the right bank of the Souris River. A ford across the river was observed to the east of the site area.

Cultural materials observed on the site were car bodies, a truck with 1966 plates, Minnesota 1958 plate, old swather, rabbit cage, snowmobile and miscellaneous domestic trash and other farm-related items. The barn was destroyed by a lightning strike several years ago. All the other structures are in good condition. The dwelling has lost essential integrity of exterior materials and design by application of wide vinyl siding and attachment of the addition.

This is the location of one of the earliest ranching occupations in the Souris Valley, and the Pleasant Post Office was quartered in the Harkness ranch house (not the present house) from 1888 to 1902 (Renville County Old Settler's Association 1976:752-753). These "events" do not appear to be of sufficient historical importance to qualify the property for eligibility under Criterion A, particularly because no structures or other features remain of the early settlement era.

The property was patented by James Harkness in 1905. Subsequent owners were Clara Johnson (1907), Melvin L. Johnson (1968), Clair A. Watne & L. C. McDaniel (1972), Ruth A. Johnson (1976), Larry & Dennis Emmel (1977), Kirk Johnson (1978), Claire A. Watne (1980), Larry & Dennis Emmel (1980), (1986), and Brian McDaniel (1987). James Harkness established one of the first ranching settlements in the Souris valley at this location in 1885, but he does not appear to have been sufficiently important in history to allow this site to be considered eligible for the National Register on the basis of its association with his life (Renville County Old Settler's Association 1976:752-754). Available biographical and historical sources do not indicate possible historical significance for any of the other persons associated with the site (Ogle 1900; Crawford 1931; Lounsberry 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976).

None of the buildings on this property manifest distinctive characteristics of a type, period, or method of construction which might be considered eligible for nomination to the National Register. This property does not represent the work of a master, and it does not exhibit high artistic values. This site is an isolated historic farmstead which has no known physical or historical associations with other properties which together might be considered eligible for nomination to the National Register as an historic district or as a thematic group. Physical evidence has not been observed on this site which might indicate a likelihood of the site to yield information important in history or prehistory, and historical sources have not indicated a potential for the site to contain information not evident from surface examination. In addition, the physical integrity of the site has been compromised by replacement of original buildings and/or construction of new buildings within most of the site area.

This site is therefore recommended to be not eligible for nomination to the National Register of Historic Places under any of the Criteria.

32PV223

This is an abandoned farmstead with a large wood frame house, two well pumps, a chicken coop, a large frame barn, a frame garage and a frame animal shelter. The barn appears to be in seasonal use. The farmstead is located within the hardwood forest along the left bank of the Souris River. Cultural materials observed on the site were a 1920s truck body, wire, steel drums, chicken

feeders, miscellaneous household refuse and farm-related items. All of the buildings except the chicken coop and the collapsed animal shelter are in good to excellent condition.

Iena Gulson was issued a patent in 1908. Subsequent owners were Alvin A. Sturdivant (1914), Norma State Bank (1920), Raymond C. Dahl (1921), Norma St. Bank (1922), Provident Life (1929), Harry W. Johnson (1945), and Harry & Arlene Johnson (1962). Available biographical and historical sources do not indicate possible historical significance for any of these persons nor for the site area (Ogle 1900; Crawford 1931; Lounsherry 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976).

The dwelling (Feature 1) embodies distinctive characteristics of one type of post-settlement dwelling, ca. 1915-1925, but neither the building nor the type is sufficiently distinctive to be considered eligible for nomination to the National Register. None of the other buildings on this property manifest distinctive characteristics of a type, period, or method of construction which might be considered eligible for nomination to the National Register. This property does not represent the work of a master, and it does not exhibit high artistic values. This site is an isolated historic farmstead which has no known physical or historical associations with other properties which together might be considered eligible for nomination to the National Register as an historic district or as a thematic group. Physical evidence has not been observed on this site which might indicate a likelihood of the site to yield information important in history or prehistory, and historical sources have not indicated a potential for the site to contain information not evident from surface examination.

This site is therefore recommended to be not eligible for nomination to the National Register of Historic Places under any of the Criteria.

32RV224

This is an abandoned farmstead consisting of a frame house, a rainbow arch wood frame barn and a wood frame granary. The house is currently being salvaged for building materials. The site is situated on the floodplain adjacent to the right bank of the Souris River. Observed on the site were chemical cans, heating stove, engine parts, rope, nails, shingles and miscellaneous household refuse and farm-related items. The frame house at this site has retained poor physical integrity due to material salvage operations. The other two structures have retained good integrity.

A Receiver Receipt was issued to John Johnson in 1909; subsequent owners have been Mary Nelson (1928), Otto Haakinstad (1928), Peter Jensen (1930), Myrtle Mae Jensen (1937), George Weaver (1943), (1958), Hazel Weaver (1966), Clifford L. Johnson (1973), and Vivian E. McCarron (1985). Available biographical and historical

sources do not indicate possible historical significance for any of these persons or for the site area (Ogle 1900; Crawford 1931; Lounsbury 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976).

None of the buildings on this property manifest distinctive characteristics of a type, period, or method of construction which might be considered eligible for nomination to the National Register. This property does not represent the work of a master, and it does not possess high artistic values. This isolated historic farmstead has no known physical or historical associations with other properties which together might be considered eligible for nomination to the National Register as an historic district or as a thematic group. Physical evidence has not been observed on this site which might indicate a likelihood of the site to yield information important in history or prehistory, and historical sources have not indicated a potential for the site to contain information not evident from surface examination.

This site is therefore recommended to be not eligible for nomination to the National Register of Historic Places under any of the Criteria.

32RV225

This is a partially abandoned farmstead consisting of a frame house, a large frame barn, garage, outhouse, well and a large number of woodframe outbuildings. Machinery parts and trash were observed scattered throughout the site area. The site is located on a small terrace and side-slope overlooking an oxbow meander on the right bank of the Souris River. Observed on the site were 55-gallon barrels, tires, snowmobiles, stoves, hog brooders, scrap metal, nails, feed grinder, glass fragments and a large quantity of domestic refuse and farm-related items. The buildings at this farmstead are in fair to poor condition.

This property was homesteaded by Obediah Stafford in 1903. Subsequent owners have been James Munro (1916), Elsie Stafford (1925), John P. Stafford (1928), Elmer Gilbertson (1933), and Norman & David Gilbertson (1974), (1978). Obediah Stafford settled on this property in 1896, and he and his family remained here until they moved to Pie Pot, Saskatchewan in 1916 (Renville County Old Settler's Association 1976:779). Available biographical and historical sources do not indicate possible historical significance for any of these persons or for the site area (Ogle 1900; Crawford 1931; Lounsbury 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976).

None of the buildings on this property manifest distinctive characteristics of a type, period, or method of construction which might be considered eligible for nomination to the National Register.

This property does not represent the work of a master, and it does

not possess high artistic values. This isolated farmstead has no known physical or historical associations with other properties which together might be considered eligible for nomination to the National Register as an historic district or as a thematic group. Physical evidence has not been observed on this site which might indicate a likelihood of the site to yield information important in history or prehistory, and historical sources have not indicated a potential for the site to contain information not evident from surface examination.

This site is therefore recommended to be not eligible for nomination to the National Register of Historic Places under any of the Criteria.

32RV226

This is a small historic habitation site consisting of a 1-1/2 story frame house. No farm machinery was observed within the site area. The site is located on the floodplain adjacent to the left bank of the Souris River. This structure was either moved to the site recently and extensively remodeled, or it was constructed after 1960. Also observed on the site were a 3-wheel recreational vehicle, a cooler, wooden table, garden hose and water tank. This site retains excellent integrity as a modern rural habitation site.

This building is either less than 30 years old or has been moved to this site and extensively altered. Available historical sources about Renville County and North Dakota do not indicate possible historical significance for this property (Andreas 1884; Ogle 1900; Crawford 1931; Lounsberry 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976).

Hans Gulson was issued a Receivers Receipt in 1902 and a patent in 1903. Subsequent owners have been Tine Bussma (1923), Stafford School District #4 (1950), George Weaver (1957), George & Hazel Weaver (1958), Leroy & Loren Luke (1962), Clifford & Verne Nelson (1973), Fred W. Mitchow & L. C. McDaniel (1973), Kirk & Richard Johnson (1978), and Vivian F. McCarroll (1985). Available biographical and historical sources do not indicate possible historical significance for any of these persons (Ogle 1900; Crawford 1931; Lounsberry 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976).

This building does not manifest distinctive characteristics of a type, period, or method of construction which might be considered eligible for nomination to the National Register. It does not represent the work of a master, and it does not possess high artistic values.

This site has no known physical or historical associations with other properties which together might be considered eligible for nomination to the National Register as an historic district or as a thematic group. Physical evidence has not been observed on this

site which might indicate a likelihood of the site to yield information important in history or prehistory, and historical sources have not indicated a potential for the site to contain information not evident from surface examination.

This site is therefore recommended to be not eligible for nomination to the National Register of Historic Places under any of the Criteria.

32RV227

This is a large abandoned farmstead consisting of a cement foundation, a frame garage, a metal quonset, a well and several livestock shelters, storage buildings and granaries. Several of the animal shelters and storage buildings are currently in use. The site is located in an oxbow meander along the left bank of the Souris River. Observed on the site were a bulldozer, freezer, tires, cement blocks, bottles, cans, farm implements and miscellaneous trash. The main house has been removed from the site. All of the other structures retain fair to good integrity.

This is the former site of Pleasant Post Office and community (1902-1909), but none of the structures presently on the site appear to date from that period. The ford in the river (Feature 11) determined the location of the post office and store. In the absence of other features dating from the early settlement period, the site does not appear to have sufficient historical associations to be eligible for nomination to the National Register (Andreas 1884; Ogle 1900; Crawford 1931; Lounsherry 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976).

This property was homesteaded by Ole P. Johnson in 1895. Subsequent owners have been Hans Johnson (1900), Olava Johnson (1913), A. N. Johnson (1934), Esther Johnson (1941), Chas. & Ella Shortridge (1948), Daniel & Fern Krenelka (1952), and Virgil & Violet Stewart (1962). Available biographical and historical sources do not indicate possible historical significance for any of these persons (Ogle 1900; Crawford 1931; Lounsherry 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976).

None of the buildings on this property manifest distinctive characteristics of a type, period, or method of construction which might be considered eligible for nomination to the National Register. This property does not represent the work of a master, and it does not possess artistic values. The site is an isolated historic farmstead which has no known physical or historical associations with other properties which together might be considered eligible for nomination to the National Register as an historic district or as a thematic group. Physical evidence has not been observed on this site which might indicate a likelihood of the site to yield information important in history or prehistory, and historical sources have not indicated a potential for the site to contain information not evident from

surface examination. In addition, the physical integrity of the site has been compromised by construction and removal of buildings from 1909 to 1988.

This site is therefore recommended to be not eligible for nomination to the National Register of Historic Places under any of the Criteria.

32RV228

This is a historic site consisting of five dugout depressions located along the right bank of the Souris River. Remains of a fieldstone foundation were observed at one of the larger and deeper depressions (F-1). Distinct doorway openings were noted at several of the depression features. No farm machinery or historical debris was observed and indications are that this site was occupied for a limited length of time. The level area south of the site area may have been cultivated at one time. One melted blue glass fragment was observed eroding out of a cattle trail within the site area. The site retains poor physical integrity as a homestead/farmstead.

The SW/SW of Section 23 was patented by Hattie M. Milne in 1912. Subsequent owners have been D. Ray Gregg (1925), John Volk (1947); (1951), and John & Caroline Volk (1952). The SE/SW of Section 23 was homesteaded by Richard Cluff in 1904. Subsequent owners have been William I. See (1907), Stafford Township (1931), John & Caroline Volk (1952), Agnes Avery (1964), and Celestine, Leo, and Phillip Volk (1974). Available biographical and historical sources do not indicate possible historical significance for any of these persons or for the site area (Ogle 1900; Crawford 1931; Lounsberry 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976).

None of the features on this property manifest distinctive characteristics of a type, period, or method of construction which might be considered eligible for nomination to the National Register. This isolated historic homestead which has no known physical or historical associations with other properties which together might be considered eligible for nomination to the National Register as an historic district or as a thematic group. Physical evidence has not been observed on this site which might indicate a likelihood of the site to yield information important in history or prehistory, and historical sources have not indicated a potential for the site to contain information not evident from surface examination.

This site is therefore recommended to be not eligible for nomination to the National Register of Historic Places under any of the Criteria.

32RV234

This is a sparse scatter of historic material located in a cultivated field. The site area lies within the floodplain on the

left bank of the Souris River. A large meander scar is located approximately 150 meters to the north. No structures or foundations were observed within the boundaries of the cultural scatter. The site may be associated with the large abandoned farmstead (32RV227) located approximately 300 meters to the west. Materials observed on site were one tan brick, three green glass fragments, one iron bolt, one purple glass fragment, one whiteware ceramic fragment, three brown crockery fragments and several coal and bone fragments. This site has retained poor physical integrity due to years of repeated cultivation. No structures or foundations remain at the site.

This site is near the former Pleasant Post Office and community (ca. 1903-1909), but the present site has no definite association with that community. Available historical sources about Renville County and North Dakota do not indicate other possible historical significance for this property (Andreas 1884; Ogle 1900; Crawford 1931; Lounsberry 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976).

This property was homesteaded by Ole P. Johnson in 1895. Subsequent owners have been Hans O. Johnson (1902), Alava Johnson (1913), A. N. Johnson (1934), Ester Johnson (1941), Chas. & Ella Shortridge (1948), (1951), Daniel D. & Fern A. Krenelka (1952), and Virgil L. & Violet E. Stewart (1962). Available biographical and historical sources do not indicate possible historical significance for any of these persons (Ogle 1900; Crawford 1931; Lounsberry 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976).

This site is an isolated historic scatter which has no known physical or historical associations with other properties which together might be considered eligible for nomination to the National Register as an historic district or as a thematic group. Physical evidence has not been observed on this site which might indicate a likelihood of the site to yield information important in history or prehistory, and historical sources have not indicated a potential for the site to contain information not evident from surface examination. In addition, the physical integrity of the site has been compromised by cultivation of most of the site area.

This site is therefore recommended to be not eligible for nomination to the National Register of Historic Places under any of the Criteria.

32RV235

This is a small, sparse scatter of historic trash located in a summer fallow field. The site is located just south of a sharp bend on the left bank of the Souris River. What appears to be a former river crossing was observed just west of the site area. No structures or structural remains were observed at the site. Cultural materials observed on site were about a dozen clear and blue glass fragments, several metal gear fragments, one aqua

bottle neck (with seam), a "black glass" bottle bottom, and several dozen fragments of coal. This site has retained poor physical integrity due to repeated cultivation.

This property was patented by James Harkness in 1905. Subsequent owners were Clara Johnson (1907), Melvin L. Johnson (1968), Clair A. Watne & L. C. McDaniel (1972), Ruth A. Johnson (1976), Larry & Dennis Emmel (1977), Kirk Johnson (1978), Claire A. Watne (1980), Larry & Dennis Emmel (1980), (1986), and Brian McDaniel (1987).

Available biographical and historical sources do not indicate possible historical significance for any of these persons or for the site area (Ogle 1900; Crawford 1931; Lounsberry 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976). Moreover, this site appears to be an isolated dump which probably could not have an important association with the life of any person, regardless of the significance of that person in our past.

This site is an isolated historic scatter which has no known physical or historical associations with other properties which together might be considered eligible for nomination to the National Register as an historic district or as a thematic group. Physical evidence has not been observed on this site which might indicate a likelihood of the site to yield information important in history or prehistory, and historical sources have not indicated a potential for the site to contain information not evident from surface examination. In addition, the physical integrity of the site has been compromised by cultivation of most of the site area.

This site is therefore recommended to be not eligible for nomination to the National Register of Historic Places under any of the Criteria.

32RV238

This is a large, sparse scatter of historic material located in a level, cultivated field immediately adjacent to the right bank of the Souris River. Four large, apparently planted cottonwood trees are located near the southern boundary of the site area. A distinct concentration of artifacts is apparent near the north edge of the site area. What appears to be a ford across the river was observed just east of this artifact concentration. No structures or structural remains were observed at the site. Cultural materials observed on the site were several tan bricks, two brown/tan crockery fragments, several green and blue glass fragments, numerous fragments of clear window glass, two whiteware ceramic fragments, a horseshoe and a piece of leather harness strap. The site apparently has retained poor physical integrity due to repeated cultivation. No structures or foundations were observed at the site.

James Finly was issued a Receivers Receipt in 1902 and his heirs were issued a patent in 1905. Subsequent owners were J. B. Switzer (1907), (1908), Christopher F. Wakelam (1914), Alice M.

Wakelam (1933), William Clifford (1939), Henry C. Hanson (1942), Emmett Hanson (1945), and Herbert Emmel (1966), (1970). Available biographical and historical sources do not indicate possible historical significance for any of these persons or for the site area (Ogle 1900; Crawford 1931; Lounsherry 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976). Dennis Emmel stated that he remembers a structure at this location from his childhood days. The ford across the river is locally referred to as the "buffalo crossing".

This site is an isolated historic scatter which has no known physical or historical associations with other properties which together might be considered eligible for nomination to the National Register as an historic district or as a thematic group. Physical evidence has not been observed on this site which might indicate a likelihood of the site to yield information important in history or prehistory, and historical sources have not indicated a potential for the site to contain information not evident from surface examination. In addition, the physical integrity of the site has been compromised by cultivation of most of the site area.

This site is therefore recommended to be not eligible for nomination to the National Register of Historic Places under any of the Criteria.

32RV438

This is a seasonally occupied farmstead consisting of a small 1-1/2 story frame house with an associated depression, a small gable roofed fieldstone icehouse, a frame outhouse, two woodframe storage buildings and a well. The site is situated near a sharp bend along the right bank of the Souris River. Also observed on the site were fuel cans, machine parts, a tractor, wire, plastic bottles, tires, metal fence posts, batteries and other miscellaneous items usually associated with a modern farming operation. All of the buildings at this site are in good to excellent condition.

George Allen occupied this location as early as 1885, and he obtained patent to the property in 1904. Subsequent owners have been Nils Wisdahl (1908), heirs of Nils Wisdahl (1936), and Oliver Wisdahl (date unknown). George Allen was one of the first permanent settlers in the upper Souris River valley, and he was counted in the special territorial census in 1885 (Schweigert 1979:26). Allen does not appear to have sufficient importance in our past to qualify this property for nomination to the National Register on the basis of its association with him. Available biographical and historical sources do not indicate possible historical significance for other persons associated with this property or for the site area (Ogle 1900; Crawford 1931; Lounsherry 1917; Robinson 1966; Hennessy 1910; Hembre 1977; Renville County Old Settler's Association 1976).

The stone icehouse embodies distinctive characteristics of one

type of structure important in the initial settlement of the region, particularly icehouses and cold food storage houses constructed of native stone materials. According to the current owner, this structure (Feature 1) was built by the original settler in the 1880s and was seasonally filled with ice cut from the nearby Souris River. This type of structure is rare in the region; no other examples of similar structures have been recorded within the Souris River Valley in North Dakota. The icehouse exhibits good workmanship, but it is not of sufficient quality or distinction to be considered the work of a master. The site does not possess high artistic values.

This site has no known physical or historical associations with other properties which together might be considered eligible for nomination to the National Register as an historic district or as a thematic group. Physical evidence has not been observed on this site which might indicate a likelihood of the site to yield information important in history or prehistory, and historical sources have not indicated a potential for the site to contain information not evident from surface examination.

This site is therefore recommended to be eligible for nomination to the National Register of Historic Places under Criterion C.

RESULTS OF SUBSURFACE TESTING

Subsurface Testing

A subsurface testing program was performed for nine areas of the proposed project where the ground surface visibility was obscured by dense foliage. The areas most frequently examined were the forest lines which abutted the river bank, croplands which had dense vegetation, and pasturelands which were covered with grasses. The linear test alignments were placed so as to maximize coverage of each specific test area (Figures 5, 6). The subsurface testing consisted of shovel probes and auger probes. Shovel probing consisted of 25x25 cm tests and was implemented only when, due to distance and access, auger probing could not be undertaken in a given area. Auger probing was accomplished by using a mechanical, gasoline-powered auger with a six inch bit (Figure 7). Both types of probes were excavated in a systematic linear method. A total of 66 test probes were excavated. These probes were excavated in 25 cm increments. The depths of the test probes ranged from 35-115 cm depending on varying soil conditions (Table 1). All excavated soils were screened through 1/4" mesh screen. Information recorded from the subsurface testing was negative, as no cultural materials were recovered from any of the subsurface probes. Following are the results of the subsurface testing program.

Test Area A.

This area was located approximately 1/4 mile south of the United States/Canadian border in the NE/NW/NE of Section 33, T.164N., R.87W. The area was situated inside of a sharp bend along the right bank of the Souris River. Except for a few grass covered clearings, the entire test area was covered by a dense stand of hardwood forest. The area has never been under cultivation. The soils here have been identified as Velva loams of the Velva Series. These soils consist of deep, well-drained, level to gently sloping, loamy soils that formed in alluvium. Runoff is slow and the area has been subjected to numerous periods of flooding. The Renville County soil survey (Theile et al. 1977) describes a surface layer composed of a very dark brown loam (10YR 2/2) about 8 inches thick. The subsoil extends to a depth of about 19 inches and consists of a very dark grayish-brown (10YR 3/2) silty loam. Underlying these two levels is a dark grayish brown (2.5Y 4/2) substrata of a very fine sandy loam extending to 60 inches or more.

Five shovel probes were excavated in 20-meter intervals in Test Area A. Total depths reached ranged from 41 to 65 cm. No cultural materials were identified in any of the probes.

Test Area B

Test Area B was located approximately 1/4 mile southeast of Test Area A, in the NW/SE/NE of Section 33, T.164N., R.87W. The area was situated on the inside of a sharp meander along the left bank of the Souris River. Except for a few grass covered clearings, the entire test area was covered by a dense stand of hardwood forest. This area has never been under cultivation. The soils here have been identified as a silty clay loam of the LaDelle Series. These soils are nearly

Figure 7.

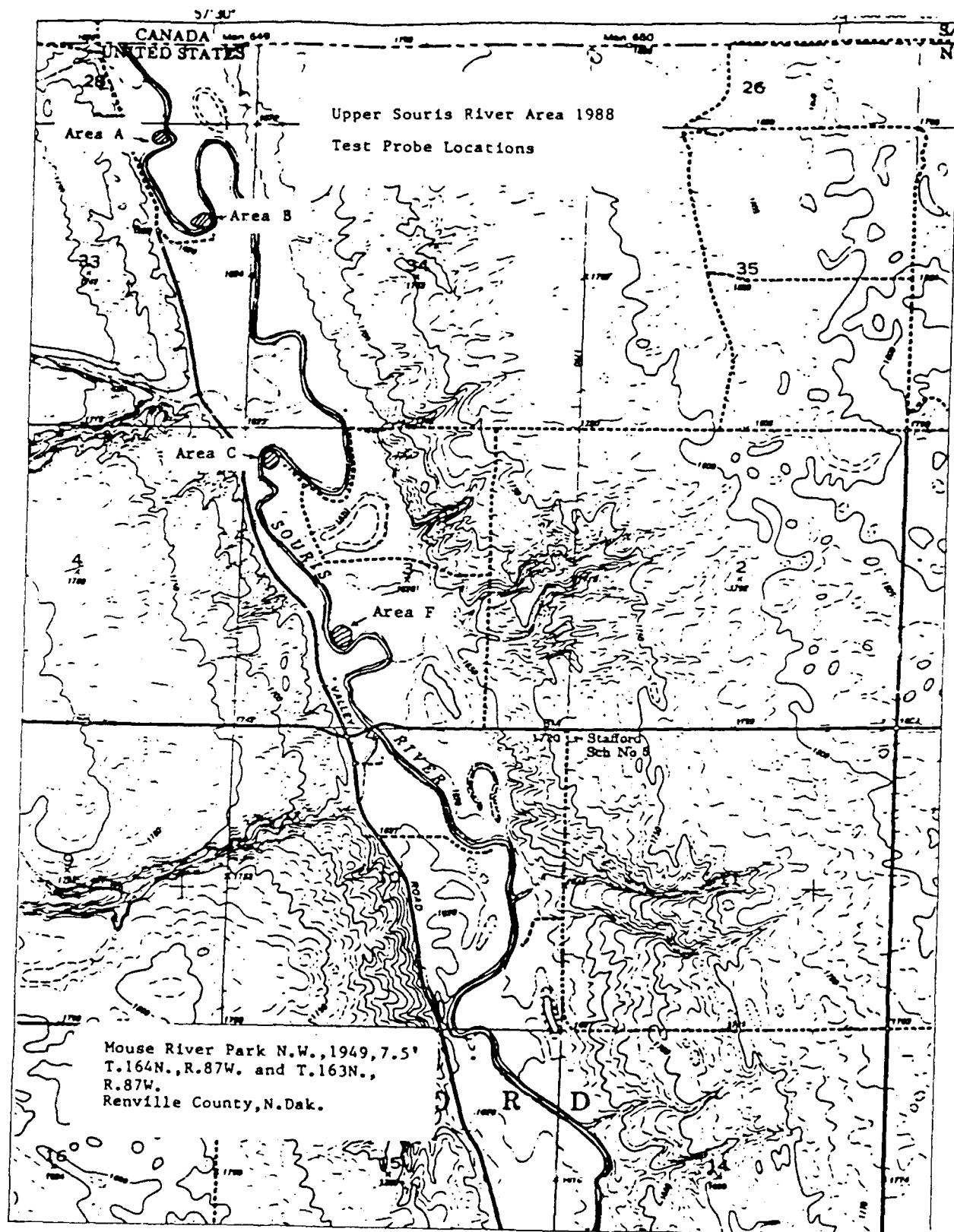


Figure 8.

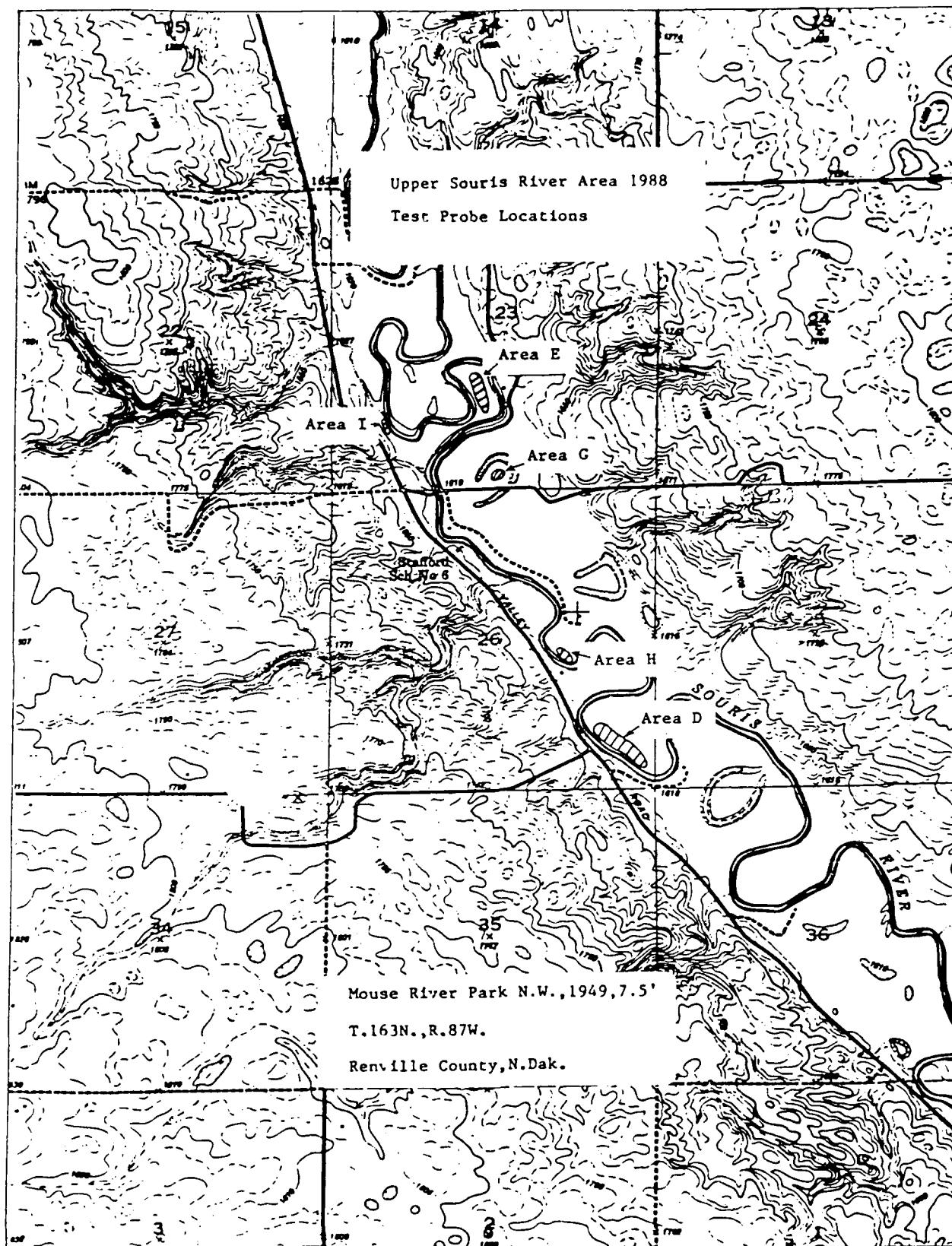


Figure 9



Auger Bit Employed In Probe Testing

TABLE 1 AUGER PROBE INVENTORY

<u>Test Area</u>	<u>Probe #</u>	<u>B2-Horizon</u>	<u>C2-Horizon</u>	<u>Total Depth</u>	<u>Results</u>
A	1	14cm.	63cm.	63cm.	Negative
A	2	7cm.	41cm.	41cm.	Negative
A	3	14cm.	57cm.	57cm.	Negative
A	4	3cm.	65cm.	65cm.	Negative
A	5	5cm.	45cm.	45cm.	Negative
B	1	5cm.	34cm.	34cm.	Negative
B	2	9cm.	59cm.	59cm.	Negative
B	3	5cm.	63cm.	63cm.	Negative
B	4	4cm.	70cm.	70cm.	Negative
B	5	13cm.	59cm.	59cm.	Negative
B	6	8cm.	52cm.	52cm.	Negative
C	1	10cm.	40cm.	40cm.	Negative
C	2	5cm.	39cm.	39cm.	Negative
C	3	6cm.	50cm.	50cm.	Negative
C	4	5cm.	35cm.	35cm.	Negative
C	5	7cm.	42cm.	42cm.	Negative
D	1	23cm.	40cm.	40cm.	Negative
D	2	18cm.	40cm.	40cm.	Negative
D	3	31cm.	42cm.	42cm.	Negative
D	4	19cm.	41cm.	41cm.	Negative
D	5	25cm.	38cm.	38cm.	Negative
D	6	7cm.	52cm.	52cm.	Negative
D	7	9cm.	39cm.	39cm.	Negative
D	8	8cm.	40cm.	40cm.	Negative
E	1	5cm.	39cm.	70cm.	Negative
E	2	8cm.	44cm.	80cm.	Negative
E	3	9cm.	41cm.	106cm.	Negative
E	4	10cm.	48cm.	95cm.	Negative
E	5	7cm.	37cm.	79cm.	Negative
E	6	8cm.	39cm.	115cm.	Negative
E	7	14cm.	43cm.	110cm.	Negative
E	8	17cm.	45cm.	98cm.	Negative
E	9	9cm.	38cm.	85cm.	Negative
E	10	15cm.	41cm.	110cm.	Negative
E	11	23cm.	46cm.	107cm.	Negative
E	12	18cm.	42cm.	100cm.	Negative
E	13	13cm.	39cm.	105cm.	Negative
F	1	12cm.	52cm.	52cm.	Negative
F	2	13cm.	49cm.	49cm.	Negative
F	3	14cm.	48cm.	48cm.	Negative
F	4	14cm.	40cm.	40cm.	Negative
F	5	8cm.	57cm.	57cm.	Negative

TABLE 1 AUGER PROBE INVENTORY (continued).

<u>Test Area</u>	<u>Probe #</u>	<u>B2-Horizon</u>	<u>C2-Horizon</u>	<u>Total Depth</u>	<u>Results</u>
G	1	26cm.	41cm.	41cm.	Negative
G	2	26cm.	42cm.	42cm.	Negative
G	3	18cm.	45cm.	45cm.	Negative
H	1	20cm.	42cm.	105cm.	Negative
H	2	10cm.	46cm.	110cm.	Negative
H	3	12cm.	39cm.	110cm.	Negative
H	4	19cm.	41cm.	114cm.	Negative
H	5	24cm.	43cm.	111cm.	Negative
H	6	37cm.	45cm.	98cm.	Negative
H	7	50cm.	49cm.	108cm.	Negative
H	8	10cm.	32cm.	107cm.	Negative
H	9	15cm.	38cm.	99cm.	Negative
H	10	20cm.	42cm.	112cm.	Negative
H	11	8cm.	36cm.	104cm.	Negative
I	1	15cm.	46cm.	110cm.	Negative
I	2	18cm.	49cm.	97cm.	Negative
I	3	12cm.	39cm.	82cm.	Negative
I	4	9cm.	36cm.	100cm.	Negative
I	5	7cm.	36cm.	99cm.	Negative
I	6	8cm.	38cm.	105cm.	Negative
I	7	12cm.	48cm.	98cm.	Negative
I	8	10cm.	46cm.	101cm.	Negative
I	9	14cm.	48cm.	95cm.	Negative
I	10	12cm.	47cm.	96cm.	Negative

level and are subject to slow runoff and frequent flooding. A representative profile for this type of soil has an upper surface layer of black silty clay loam (10YP 2/1) approximately 8 inches thick. Below this, a layer of very dark grayish-brown silty clay loam (2.5Y 3/2) extends to approximately 26 inches, and a substrata of dark grayish-brown sandy loam (2.5Y 4/2) extends to a depth of about 40 inches.

Six shovel probes were excavated at 20-meter intervals within Test Area E. Total depths of these probes ranged from 34 to 70 cm. No cultural materials were recovered in any of the test probes.

Test Area C

Test Area C was located approximately 7/8 mile southeast of Test Area B, in the NW/NW/NW of Section 3, T.163N., R.87W. This area lies inside of a sharp meander along the left bank of the Souris River. The entire test area was covered by dense grasses and a moderately dense stand of floodplain hardwood forest. The area has been used for cattle grazing and has never been cultivated.

The soils here have been identified as Velva loams of the Velva Series. These soils consist of deep, well-drained, level to gently sloping, loamy soils that formed in alluvium. Runoff is slow and the area has been subjected to numerous periods of flooding. A representative profile describes a surface layer composed of a very dark brown loam (10YR 2/2) about 8 inches thick. The subsoil extends to a depth of about 19 inches and consists of a very dark grayish-brown (10YR 3/2) silty loam. Underlying these two levels is a dark grayish-brown (2.5Y 4/2) substrata of a very fine sandy loam extending to 60 inches or more.

Five shovel probes were excavated at 20-meter intervals within Test Area C. Probe depths ranged from 39 to 50 cm. No cultural materials were recovered from any of the shovel probes.

Test Area D

Test Area D was located approximately 5 miles southeast of Test Area C, in the SE/SE/SE and the N1/2/SE/SE of Section 26, T.163N., R.86W. This area lies within a large meander loop along the left bank of the Souris River. A dense stand of Northern Floodplain Forest occupies the river bank within this test area. The soils found here are similar to the deep Velva loams identified at Test Areas A and C. The area has never been cultivated.

Eight shovel probes were excavated at 20-meter intervals within this test area. Depths ranged from 38 to 52 cm. No cultural materials were recovered in any of the test probes.

Test Area E

Test Area E was located approximately 1.25 miles northwest of Test Area D, in the SE/NE/SW and the NE/NE/SW of Section 23, T.163N., R.87W. The area lies inside a large meander loop along the right bank of the

Souris River. Except for a few grass-covered clearings, the entire area was occupied by dense Northern Floodplain Forest. The soils here are deep alluvial Velva loams similar to those identified at Test Areas A, C and D. The area has never been cultivated.

Thirteen power auger probes were excavated at 20-meter intervals within this test area. Depths ranged from 70 to 115 cm. No cultural materials were found in any of the probes.

Test Area F

Test Area F was located approximately 3.25 miles northwest of Test Area E in the SW/NE/SW of Section 3, T.163N., R.87W. The test area lies adjacent to a sharp bend along the left bank of the Souris River. The entire area was occupied by dense Northern Floodplain Forest.

The soils here have been identified as deep alluvial Velva loams and are similar to those found at Test Areas A, C, D and E. The area has never been under cultivation.

Five shovel probes were excavated at 20-meter intervals within Test Area F. Depths ranged from 40 to 57 cm. No cultural materials were recovered from any of the test probes.

Test Area G

Test area G was located about 1/4 mile south of Test Area E, in the SW/SW/SE of Section 23, T.163N., R.87W. The area lies within a dry, abandoned meander loop of the Souris River. A dense growth of shrubs and hardwoods occupied the locality. The soils here have been identified as deep alluvial Velva loams and are similar to those found at Test Areas A, C, D, E and F. The area has never been under cultivation.

Three shovel probes were excavated at 20-meter intervals at Test Area G. Depths ranged from 41 to 45 cm. No cultural materials were located in any of the shovel probes.

Test Area H

Test Area H was located approximately 5/8 mile southeast of Test Area G, in the NE/NW/SE of Section 26, T.163N., R.87W. The area lies on the inside of a sharp meander along the left bank of the Souris River. The entire area was covered by moderately dense Northern Floodplain Forest. The soils here have been identified as deep alluvial Velva loams similar to those found at Test Areas A, C, D, E, F and G.

Eleven power auger probes were excavated in 20-meter intervals at Test Area H. Depths ranged from 98 to 114 cm. No cultural materials were encountered in any of the test probes.

Test Area I

Test Area I was located approximately 1/4 mile west of Test Area

F, in the NE/SW/SW of Section 23, T.163N., R.87W. The area lies just south of an intermittent drainage channel along the right bank of the Souris River. Native short grass prairie covered the entire test area. The soils here have been identified as deep alluvial Velva loams similar to those found at Test Areas A, C, D, E, F, G and H. The area has never been under cultivation.

Ten power auger probes were excavated at 10-meter intervals along this river bank test area. Depths ranged from 82 to 110 cm. No cultural materials were recovered from any of the test probes.

Summary

The subsurface testing of the nine selected locations within the project area indicate the absence of cultural materials within these areas. Most of these locations were thought to be prime areas for the discovery of cultural sites by the researchers. The lack of cultural materials within these probes may serve to indicate that:

- 1) Cultural sites were not found because they do not exist in these areas, or
- 2) The cultural sites were beyond the depth of the probes.

As indicated in the geomorphology section below, this portion of the Souris River Valley contains deep alluvial and aeolian deposits. Thus, it is possible that the latter supposition is the more correct of the two. Sites 32RV209 and 32RV231 demonstrate the potential for deeply buried sites near the river.

Figure 10



Probe Area E - Auger Testing - View To The West



Probe Area E - Auger Testing - View To The West

Figure 11



Augering In Probe Area H - View To The West



Augering In Probe Area H - View To The West

Figure 12



Probe Area F - Shovel Probe & Screening - View To The West



Probe Area G - Shovel Probe & Screening - View To The Northeast

Figure 13



Probe Area G - Shovel Probe & Screening - View To The Northeast

Figure 14



Back-filled Auger Hole



Auger Testing

LITHIC ANALYSIS

Sixteen prehistoric and two historic sites yielded lithic material within the project area. The lithic tools from these sites were divided into six categories: projectile points/knives, bifaces and biface fragments, unifaces and uniface fragments, modified flakes, utilized flakes, and groundstone. Each tool is identified by a project site number and artifact number and is described below in terms of material type, function, and comparative analysis with known tool types. The tools were all measured with metric calipers for length, width, and thickness. The specimens were then weighed with a triple-beam gram scale. Each tool was examined for evidence of use wear along the margins using a hand held 10x to 15x hand loop. The results of the lithic tool analysis follow.

Projectile Points/Knives

32RV201-1

Length: 44 mm
Width: 29 mm
Thickness: 8 mm
Weight: 9.3 g

Material: Knife River Flint

Description: The specimen is well made and demonstrates non-patterned flaking across both the dorsal and ventral surfaces. The specimen is plano-convex in cross-section. A great many inclusions occur throughout the lithic material. These inclusions probably are the reason a non-patterned flaking technique was used for this artifact, as the inclusions would not allow patterned flaking techniques to be performed. The lateral edges have small secondary retouch scars along both the dorsal and ventral surfaces. In some cases these flake scars terminate at step fractures, usually where the flake scar encounters an inclusion. On the ventral surface near the anterior end of the artifact a large step fracture occurs terminating at a large white crystalline inclusion. Pressure flaked retouch occurs across the surfaces to the extent it obliterates the initial percussion flake scars. Use-wear is evinced on the lateral margins by crushing and step fracturing across the pressure flake scars. This use-wear pattern may be indicative of a cutting function for the specimen. The artifact is side-notched with relatively deep U-shaped notches and has sharp distinct shoulders. The hafting element has been basally thinned and ground.

Function: The specimen appears to have functioned as a projectile point type or possibly a knife, as evinced by the possible use-wear patterning on the lateral margins.

Comparative Analysis: The specimen has many of the characteristics common to Besant projectile points. Wettlaufer (1955:44) first encountered this projectile point at the Mortlach site and described them as being short and broad with shallow side notches and a slightly concave base. The lengths of Besant points range from 22.5 to 75.0 mm, widths from 11.0 to 33.2 mm, and thicknesses from 2.62 to 9.02 mm (Davis and Stallcop 1966:32). Basal grinding or thinning is apparent

on the points, with both percussion and pressure flaking techniques occurring on some points (Johnson 1970:56). Besant projectile points are common to the Middle Woodland period (A.D. 1-700) (Worrington and Fortis 1965:162).

32RV202-1

Length: 31 mm
Width: 21 mm
Thickness: 5 mm
Weight: 3.6 g

Material: Quartzite

Description: This specimen is made from a tertiary flake of fine-grained quartzite. The workmanship is very good. The artifact is plano-convex in cross-section. Non-patterned flake scars occur on the dorsal surface of the specimen. Many of these flake scars terminate in step fractures near the median line of the dorsal surface. Only minimal flake scarring occurs on the ventral surface. The flake scars consist of minimal pressure flaking retouch along the lateral margins. No evidence of use-wear could be ascertained along the lateral margins of the tool. The artifact is side-notched with small relatively shallow U-shaped notches. The shoulders of the tool are sharp and well defined. The posterior end of the tool has been basally ground.

Function: The tool probably functioned as a projectile point.

Comparative Analysis: The specimen has characteristics which identify it as a Besant projectile point as discussed above.

32RV202-2

Length: 76 mm
Width: 39 mm
Thickness: 10 mm
Weight: 25.1 g

Material: Knife River Flint

Description: The tool is a large triangular biface. The specimen is ovate in cross-section and the workmanship is of lower quality than previously discussed specimens. This may be due in part to the large amount of inclusions which appear in the stone. The flake scarring on the tool is non-patterned. On the dorsal surface many of the flake scars terminate at the median line of the tool where white crystalline inclusions are located. The ventral surface flake scarring is not as well formed as the dorsal. This is due to two early percussion flake scars one of which step fractured at the median line and the other hinge fractured across the median. Primary and secondary pressure flake scars obliterate the earlier flake scars along the lateral margins. Crushing, microscopic step fracturing, and scalar flake scars occur across the pressure flake scars on the working edges and may be indicative of use-wear from medium dense materials such as wood or bone (Keeley 1980). The tool has wide flaring, U-shaped corner notches near the posterior end. The base constricts toward the anterior portion of the tool. The posterior end of the base has been basally thinned for

hafting.

Function: The tool may have functioned as a projectile point, but because of its size and the edge damage which has occurred it probably was better suited for use as a knife.

Comparative Analysis: This specimen has attributes which identify it as a Pelican Lake projectile point which, like the Besant type, was first described by Wetlaufer (1955) at the Mortlach site. Pelican Lake points are described as distinctive, triangular points with straight to concave sides, deep corner notches, and straight to slightly convex bases (Wetlaufer and Mayer-Cakes 1960:44). The points range in length from 22.5 to 78 mm, in width from 14 to 22 mm, and in thicknesses from 3.5 to 6.0 mm (Kehoe 1973:109-111). At the Mortlach site these projectile points were deposited during the Late Archaic period at about 450 B.C. (Wetlaufer 1955).

32RV205-1

Length: 11 mm
Width: 10 mm
Thickness: 3 mm
Weight: 0.3 g

Material: Clear Chalcedony

Description: This tool is small, triangular shaped, and ovate in cross-section. The specimen appears to have been formed by pressure flaking a tertiary flake of clear chalcedony. Pressure flaking occurs along the edge margins, but there is little evidence of use-wear across the flake scars. The specimen is broken by a perverse fracture near the anterior end. This fracture occurs where a white crystalline inclusion exists in the stone. The fracture appears to have occurred during the manufacturing process rather than during use. The specimen is side notched with relatively deep U-shaped notches which separate the blade portion from the base. The base has been basally thinned for hafting. The base constricts near the blade portion and expands toward the posterior end.

Function: The tool is a manufacturing reject, but was probably designed to function as a projectile point.

Comparative Analysis: Although broken, this specimen displays attributes which identify it as the remnant of a Plains Side-notched projectile point. Plains Side-notched points are characterized by a well defined cutline with sharp angles at the bases and notches. The notches are small, deep, and narrow. The bases range from straight to slightly concave (Kehoe 1973:60-61). The projectile points, identified at the Gull Lake site by Kehoe (1973), averaged 22.7 mm in length, 13.4 mm in width, and 3.5 mm in thickness. Plains Side-notched projectile points first appear in the archeological context after A.D. 1250 and extend into the Historic period (Kehoe 1973). These points are not diagnostic of any one particular cultural tradition.

32RV205-2

Length: 7 mm
Width: 13 mm
Thickness: 3 mm
Weight: 0.3 g

Material: Quartzite

Description: The specimen has incurred a hinged type fracture at the juncture of the hafting element and the blade portion. This type of fracture is called a haft snap and usually happens during use of the tool. Only the basal portion of the tool is extant and this has been basally thinned to promote hafting. The tool is ovate in cross-section and appears to have been relatively well made. The remnants of shallow, U-shaped side notches occur below the fracture plane.

Function: The specimen may have functioned as a projectile point, but this is difficult to determine because the anterior portion of the tool is missing. The fractured area is indicative of the remnant of a projectile point which has incurred a haft snap.

Comparative Analysis: To reiterate, this point has incurred a haft snap, but there are enough identifiable attributes left to suggest it is a Plains Side-notched projectile point as described above.

32RV208-1

Length: 20 mm
Width: 15 mm
Thickness: 4 mm
Weight: 1.1 g

Material: Quartzite

Description: This specimen is a triangular shaped biface made from a tertiary flake. The tool is plano-convex in cross-section and exhibits relatively inferior workmanship which can probably be attributed to the material from which it is made. Step fracture flake scars cross the median line of the tool on both surfaces. The specimen was probably larger at one time, but continuous resharpening has reduced the size of the blade portion. Both surfaces exhibit non-patterned pressure flaking as the reduction process. The tool is side notched with deep U and V-shaped notches. The base is concave and rounded with prominent ears projecting from it. Basal grinding for hafting is evident.

Function: This specimen may have functioned as a projectile point and may have also functioned as a cutting tool as evinced by the amount of resharpening along the blade.

Comparative Analysis: The tool exhibits characteristics of Avonlea projectile points, particularly the Carmichael Wide-Fared Variety. The workmanship of these points is markedly inferior to other Avonlea types (Kehoe 1973:55). Carmichael points are shorter and broader than other Avonlea types. Avonlea points are noted for their well-executed flaking and broad shallow flake scars (Kehoe 1973:51). The notches are V- or U-shaped and are fairly wide and shallow. The bases of the points are concave with the corners rounded and ears projecting from

them (Kehoe 1973:52). Point lengths range from 17 to 28 mm, widths range from 11 to 16 mm, and thicknesses of 3 to 4 mm (Kehoe 1973:52). Avonlea projectile points range in age from A.D. 200 to 900 (Kehoe 1973:51).

32RV212-1

Length: 24 mm
Width: 14 mm
Thickness: 4 mm
Weight: 0.9 g

Material: Petrified Wood

Description: The specimen is a finely made triangular shaped biface which is plano-convex in cross-section. The tool is symmetrically shaped and made from a tertiary flake. The blade portion of the tool exhibits primary pressure flake scarring. The flaking pattern is random. A suggestion of use-wear is evinced along the lateral margins as numerous microscopic step fracture scars and scalar flake scars are present. These step fracture and scalar scars are thought to be use-wear patterns related to tool work on medium dense objects (Keeley 1980). The specimen has deep U-shaped side notches occurring above the basal portion. The shoulders of the tool are well formed. The base has rounded ears which protrude beyond the blade. It has been basally thinned for hafting.

Function: The tool appears to have functioned as a projectile point.

Comparative Analysis: The tool is a fine example of a Plains Side-notched projectile point as described in Kehoe (1973). The criteria for this projectile point type are listed above.

32RV213-1

Length: 24 mm
Width: 16 mm
Thickness: 5 mm
Weight: 1.5 g

Material: Knife River Flint

Description: The specimen exhibits mediocre workmanship which is probably due in part to the large amount of inclusive material present in the stone. The tool is triangular in shape and plano-convex in cross-section. The flake scars demonstrate a non-patterned reduction process. Step fracture scars are apparent on both the dorsal and ventral surfaces of the tool. These steps fractures often terminate where inclusions occur in the stone. The anterior end of specimen has a perverse fracture along the right lateral margin. This may have been caused during the pressure flaking of this edge, or since the tool was recovered from a pasture area, it is possible that the fracture occurred from trampling. The right shoulder is pronounced and the left shoulder has been rounded off by what appears to be a hinge fracture. The tool has U-shaped side notches which are well formed. The base is flat with sharp ears and has been basally ground for hafting.

Function: It is probable that the specimen functioned as a projectile point.

Comparative Analysis: This specimen has attributes which closely resemble Prairie Side-notched projectile points. These projectile points demonstrate mediocre bifacial flaking and often lack symmetry (Kehoe 1973:56). The notches are wide but shallow and are U- or V-shaped. Lengths of these points range from 17 to 28 mm, widths vary from 12 to 15 mm, and thicknesses range from 3 to 5 mm (Kehoe 1973:56). The time range for this type is from A.D. 700 to 1250 (Kehoe 1973).

32RV233-1

Length: 23 mm
Width: 13 mm
Thickness: 3 mm
Weight: 0.9 g

Material: Porcellanite

Description: The specimen is a well-made triangular biface which is ovate in cross-section. The tool is made from a tertiary flake of gray porcellanite. Non-patterned pressure flake scars are evident on both surfaces of the tool. These scars often terminate at the median line of the tool, and rarely go beyond this point. There is no evidence of flake patterns indicating use-wear on the lateral margins of the tool. The tool has U-shaped side notches which are equi-distant from the base. The base is slightly concave. The right ear of the base was snapped off. This may have been due to an impact fracture or it may have been caused by animal trampling as the tool was recovered from a pasture area. The base has been thinned and slightly ground for hafting.

Function: The specimen appears to have functioned as a projectile point.

Comparative Analysis: The tool is a fine example of a Plains Side-notched projectile point as described in Kehoe (1973). The criteria for this projectile point type are listed above.

Biface and Biface Fragments

32RV212-10

Length: 20 mm
Width: 16 mm
Thickness: 5 mm
Weight: 2.0 g

Material: Chert

Description: The specimen is a triangular shaped biface which is plano-convex in cross-section. The tool made from a tertiary flake. The anterior portion has sustained a fracture resulting in the loss of the tip. Because the tool was recovered from a cultivated field and does not demonstrate the attributes of other types of manufacturing or use fractures, it appears the fracture may have been caused by farm

machinery. The specimen exhibits rather crude workmanship which can be attributed to the material from which it is made. The tool is thicker along the median line than along the lateral margins. This thickness is caused by the step fracturing of the material until it reached a point where the edge angles no longer allowed it to be thinned. This tool was probably discarded as there was little evidence of use-wear along the edge margins.

Function: The specimen probably was a blank or preform for a side-notched projectile point but became a manufacturing reject when the edge angles became too extreme to successfully reduce.

Comparative Analysis: The tool is not considered to be culturally diagnostic.

32RV212-2

Length: 76 mm
Width: 35 mm
Thickness: 7 mm
Weight: 22.5 g

Material: Quartzite

Description: The specimen is a large well-made biface which is ovate in cross-section. The tool was made from a flake core of quartzite. Remnants of the initial percussion flake scars occur on both surfaces. The biface is oval in shape with the anterior end sharpened to a distinct point, and the posterior end is rounded along the right side and sharpened to a point along the left edge margin. The left lateral margin had been resharpened along the dorsal surface in such a manner as to suggest the edge was deliberately beveled from end to end. All edge margins are bifacially pressure flaked in a non-patterned manner.

None of the pressure flaking exceeds the median line of the tool on either surface. Scalar scarring and microscopic step fracturing occur along the lateral margins of the tool. This type of edge damage is often indicative of use-wear from cutting medium dense to dense objects. The posterior end has been basally thinned to promote hafting.

Function: The specimen appears to have functioned as a cutting tool, perhaps a hafted knife.

Comparative Analysis: The tool is not considered to be culturally diagnostic.

32RV212-3

Length: 46 mm
Width: 22 mm
Thickness: 8 mm
Weight: 9.1 g

Material: Quartzite

Description: The specimen is a fragment from a well-made biface. The posterior end has been broken by a perverse fracture which may have

been incurred during use but more likely occurred when the specimen was struck by farm cultivation equipment. The tool is piano-convex in cross-section. Percussion flaking was performed in the formation of the tool, and pressure flaking occurred in the latter stages of the tool manufacture. Pressure flaking was used to produce the edge margins. Only the left lateral margin displays any incidence of use-wear patterning. This takes the form of scalar flake scars and microscopic step fractures which are usually indicative of cutting and scraping of medium dense materials (Keeley 1980). On the dorsal surface this edge margin exceeds a 45 degree angle, which may mean the edge was no longer fit for resharpening and the tool was abandoned.

Function: The specimen probably was used as a cutting tool, perhaps a hafted knife.

Comparative Analysis: The tool is not considered to be culturally diagnostic.

32RV212-4

Length: 49 mm
Width: 15 mm
Thickness: 7 mm
Weight: 6.9 g

Material: Quartzite

Description: The specimen is a biface fragment. The posterior edge has been broken by a lateral snap which may have occurred during use or when the specimen was struck by farm cultivation machinery. The tool is ovate in cross-section. Evidence of the initial reduction stages of the tool have been obliterated by secondary pressure flake reduction scars. Large step fractures extend beyond the median line of the dorsal surface. The coarse grain of the material makes it difficult to determine if use-wear is present along the edge margins. Some macroscopic as well as microscopic step fracturing occurs along the edge margins. This probably indicates the tool was being resharpened and perhaps used as a cutting tool on dense materials (Keeley 1980). Due to the steepness of the edge angles and the difficulty of resharpening this type of material, the tool was probably abandoned.

Function: This biface fragment probably was utilized as a cutting or chopping tool.

Comparative Analysis: The tool is not considered to be culturally diagnostic.

32RV212-5

Length: 17 mm
Width: 18 mm
Thickness: 5 mm
Weight: 1.3 g

Material: Porcellanite

Description: The specimen is a biface fragment which has been broken in a lateral snap which appears to have happened during manufacture.

The pressure flake scars are non-patterned and cross the median line of both surfaces. There is no evidence of edge damage along the lateral margins. This indicates that the biface was probably not utilized, possibly because the tool was broken in the latter stages of manufacture.

Function: The specimen appears to be a manufacturing reject.

Comparative Analysis: The tool is not considered to be culturally diagnostic.

32RV229-1

Length: 43 mm
Width: 27 mm
Thickness: 14 mm
Weight: 15.0 g

Material: Quartzite

Description: This specimen is a crude biface made from a large primary flake. Cortex material is present on the dorsal surface. A remnant platform is located on the posterior end of the tool. The biface was formed by use of a direct percussion technique. A large inclusion is located in the center of the material on the ventral surface. This inclusion made the stone difficult to work, and as a result the biface was not completed. There is no evidence of use-wear on the lateral edge margins.

Function: The tool was never fully formed because of difficulty in working the stone. This specimen was probably a manufacturing reject.

Comparative Analysis: The tool is not considered to be culturally diagnostic.

32RV236-1

Length: 24 mm
Width: 29 mm
Thickness: 8 mm
Weight: 5.9 g

Material: Swan River Chert

Description: The specimen appears to be the midsection of a broken biface. Perverse fractures have taken place on both the anterior and posterior ends. The tool fragment is plano-convex in cross-section and appears to have been broken during cultivation. The biface fragment is well formed, with the primary reduction flaking appearing along the median line of the dorsal surface. Both lateral margins have been bifacially pressure flaked, and both exhibit steep edge angles making further resharpening difficult. Crushing and step fracturing occurs along the edge margins.

Function: The step fracturing and crushing along the edge margins, indicates this tool fragment was probably utilized in a cutting or scraping manner.

Comparative Analysis: The tool is not considered to be culturally diagnostic.

Unifaces and Uniface Fragments

32RV209-1

Length: 29 mm
Width: 20 mm
Thickness: 7 mm
Weight: 4.6 g

Material: Knife River Flint

Description: This specimen is made from a tertiary percussion flake which has a platform and bulb of percussion with force rings present on the ventral surface. The flake has a large amount of inclusive material around the ventral surface platform area. With the exception of the platform area, all edge margins have been modified by pressure flaking. The edge margins also show evidence of use-wear along them. Small scalar flake scars and step fractures occur across the margins.

Function: The specimen is an example of a tool form referred to as an end-scraper. The use-wear pattern is reminiscent of use-wear on tools which were used for scraping medium hard materials (Keeley 1980).

Comparative Analysis: Similar end-scrapers have a wide spacial and temporal affiliation across the United States and consequently have little value as diagnostic artifacts (Stoltman 1973).

32RV212-7

Length: 20 mm
Width: 16 mm
Thickness: 7 mm
Weight: 2.4 g

Material: Knife River Flint

Description: This specimen is a fragment of a unifacial tool. Cortex remains along the right margin of the dorsal surface. The tool has been broken in two areas. The first is a hinge fracture along the anterior end of the tool. The second is a hinge fracture which extends from the left lateral margin to the posterior end. Pressure flaking was used to form the tool. The only evidence of use-wear occurs along the right side of the posterior end where scalar flake scarring and crushing occur across the edge margin. Some recent damage is evinced along the left lateral margin, which was probably caused by farm cultivation.

Function: The use-wear patterns on the tool fragment indicate it was probably utilized as a scraping tool for soft materials (Keeley 1980).

Comparative Analysis: The tool is not considered to be culturally diagnostic.

32RV230-1

Length: 25 mm
Width: 19 mm
Thickness: 9 mm
Weight: 3.6 g

Material: Knife River Flint

Description: The specimen is an example of a well made unifacial tool. The tool was made from a large tertiary flake. The flake for the tool was initially struck employing a percussion flaking technique. A platform with two facets is still present on the ventral surface. The bulb of percussion and rings of force are also evident on the ventral surface. The dorsal surface exhibits both percussion and pressure flake scars. The edge margins have been pressure flaked, with the posterior edge being steeply backed. Use-wear takes the form of scalar flake scars, microscopic step fractures, and crushing along the edge margin. The posterior edge margin demonstrates the most damage.

Function: This tool is a fine example of what is referred to as a thumbnail or end-scraper. The use-wear damage along the edge margins indicates it was utilized for scraping of soft to medium dense materials (Keeley 1980).

Comparative Analysis: Similar end-scrapers have a wide spacial and temporal affiliation across the United States and consequently have little value as diagnostic artifacts (Stoltman 1973).

Modified Flakes

32RV208-2

Length: 62 mm
Width: 41 mm
Thickness: 10 mm
Weight: 27.6 g

Material: Quartzite

Description: The specimen is a modified flake made from a large tertiary percussion flake of coarsely grained quartzite. A faceted platform and bulb of percussion with rings of force are present on the ventral surface. Only the left lateral margin has been unifacially modified. Evenly spaced pressure flake scars which do not exceed 3 mm in length are present from the anterior to posterior ends. Edge damage consists of microscopic step fracture scars and crushing across the flake scars and are indicative of use-wear.

Function: The tool appears to have functioned as a scraping tool which may have been used on medium dense to dense objects (Keeley 1980).

Comparative Analysis: The tool is not considered to be culturally diagnostic.

32RV210-1

Length: 40 mm
Width: 14 mm
Thickness: 3 mm
Weight: 2.2 g

Material: Knife River Flint

Description: The tool is a modified flake which has been broken in a perverse fracture along the posterior end. This fracture appears to be recent and was probably caused when the specimen was struck by farm machinery. The tool is formed from a single tertiary blade flake. The flake was produced through a percussive technique, and a multi-faceted platform is present on the ventral surface. The bulb of percussion and rings of force are also present. The lateral margins have been deliberately modified; pressure flakes scars which do not exceed 3 mm in length are evenly distributed. Edge damage in the form of microscopic step fracturing, scalar flake scarring, and edge crushing are present along the lateral margins. These types of damage are often indicative of use-wear.

Function: The specimen is a modified flake which exhibits use-wear patterning which may indicate the tool was utilized in the cutting and/or scraping of medium dense objects (Keeley 1980).

Comparative Analysis: The tool is not considered to be culturally diagnostic.

32RV212-6

Length: 46 mm
Width: 22 mm
Thickness: 4 mm
Weight: 5.6 g

Material: Porcellanite

Description: The specimen is a modified tertiary flake of porcellanite. The flake was struck with a percussive technique. A single faceted platform is present on the ventral surface. The bulb of percussion and ring of force are also present. Step fracture scars occur near the platform area of the flake on the anterior end. The lateral margins and posterior end have been modified with evenly spaced pressure flake scars which do not exceed 3 mm in length. Scalar flake scars, microscopic step fracturing, and crushing across the edge margins indicate use-wear.

Function: The flake has been deliberately pressure flaked and modified to form a backed edge. The damage along the edge margins indicates the artifact was utilized as an expedient cutting and scraping tool.

Comparative Analysis: The tool is not considered to be culturally diagnostic.

32RV212-11

Length: 45 mm
Width: 19 mm
Thickness: 12 mm

Weight: 9.6 g

Material: Porcellanite

Description: This artifact is a fragment of a waste flake which has had a working edge formed by pressure flaking. The flake was broken by a perverse fracture along the anterior end. This fracture appears to be recent and was probably caused when the artifact was struck by farm machinery. Extensive step fracture damage is exhibited along the posterior end of the dorsal surface. This may have been caused during an attempt to reduce the flake. In addition, a large U-shaped flake scar is also present. Edge modification occurs along the margins of the ventral surface. The modification takes the form of evenly spaced pressure flake scars which are no longer than 2-4 mm. Use-wear damage in the form of scalar flake scars and microscopic step fractures occur across the pressure flake scars.

Function: Modification to the edge margins on this flake and the evidence of use-wear patterns indicate scraping of soft to medium dense materials (Keeley 1980). This tool fragment probably functioned as an expedient cutting or scraping tool.

Comparative Analysis: The tool is not considered to be culturally diagnostic.

Utilized Flakes

32RV212-8

Length: 29 mm
Width: 25 mm
Thickness: 9 mm
Weight: 8.6 g

Material: Moss Agate

Description: The tool is formed from a secondary percussion flake. Cortex is present on the platform, and a bulb of percussion is also present. Edge damage in the form of severe step fracturing occurs on the ventral surface of the posterior end of the flake. This step fracturing is often indicative of use-wear. It is possible this flake was hafted.

Function: Given the pattern of use-wear on the flake's ventral surface, it appears the flake may have been utilized as a gouge. The severe step fracturing of the posterior end is often associated with the cutting or hewing of dense materials (Keeley 1980).

Comparative Analysis: The tool is not considered to be culturally diagnostic.

32RV212-9

Length: 24 mm
Width: 18 mm
Thickness: 2 mm
Weight: 1.0 g

Material: Knife River Flint

Description: This specimen is made from a tertiary percussion flake. A multi-faceted platform, bulb of percussion, and force rings are all present on the ventral surface. Scalar flake scars, edge nibbling and crushing occur along the right lateral margin from the platform to the posterior end. This type of edge damage is often indicative of use-wear.

Function: The artifact appears to have function as an expedient tool. The use-wear pattern may indicate the tool was used for scraping soft to medium dense objects (Keeley 1980).

Comparative Analysis: The tool is not considered to be culturally diagnostic.

Groundstone

32RV232-1

Length: 153 mm
Width: 72 mm
Thickness: 45 mm
Weight: 2904.0 g

Material: Diorite

Description: The artifact was formed from a cobble of diorite. A groove 20 mm wide extends at an angle three quarters of the way around the tool. The distal end of the specimen has been flattened and polished. The right lateral edge margin has been pecked and ground to a sharp edge. This edge has been highly polished. Damage to the tool occurs on both the dorsal and ventral surfaces of the left lateral margin. This damage takes the form of a series of percussion step fracture scars.

Function: The specimen may have functioned as an axe for hewing dense materials. The damage on the left lateral margin may have occurred through use of the tool for hammering or possibly when the specimen was struck by cultivation equipment.

Comparative Analysis: This tool is not considered to be culturally diagnostic.

Raw Material Distribution

Ten raw material types have been identified in the collection of artifacts from this portion of the Souris River Valley: Knife River flint, Swan River chert, quartzite, chert, jasper, moss agate, chalcedony, petrified wood, porcellanite, and diorite. Of these ten materials, only Knife River flint (KRF) and Swan River chert can be identified as nonlocal (Syms 1980). The primary source area for Knife River flint has been identified in Dunn and Mercer Counties, North Dakota, approximately 100 miles due south of the project area (Clayton

Figure 15



32RV232 - Ground Stone Tool - Grooved Axe

et al. 1970; Ahler 1977; and Ahler 1986). Recently Gregg (1987b) has determined that KRF occurs naturally in small quantities in many localities in the Northeastern Plains, having been secondarily deposited through alluvial action during the Tertiary Period and then displaced from preglacial river valleys by Pleistocene glacial processes. Knife River flint has been identified in the reworked tills of the James and Sheyenne river valleys (Gregg 1987b:374). Perhaps a similar action occurred in the Souris River Valley where small cobbles of KRF have been located in archeological sites.

Swan River chert (SRC) has a wide distribution, occurring in Alberta, Saskatchewan, and the western portion of Manitoba (Bakken 1985). Ahler (1977) has also identified SRC as being present in North Dakota. During previous cultural inventories in the Souris River Valley, SRC has been identified as the most frequently used material for the manufacture of lithic tools (Good and Fox 1978; Syms 1980; Floodman and Friedman 1986). Identification of this material is difficult under field conditions. Campling (1980) described SRC and noted that there is little congruence between the material's macroscopic and microscopic appearance. In fact for a material to be considered SRC, it must exhibit the following microscopic crystal habits:

- 1) medium-grained chalcedonic spherulites
- 2) larger-grained well-shaped granoblastic quartz
- 3) fine-grained poorly-shaped quartz

Any material not exhibiting this tri-modal crystal habit is not considered to be Swan River chert (Campling 1980:291).

In the field SRC and quartzite can be readily mistaken for one another. Good and Fox (1978:108) note there is "considerable confusion between SRC and quartzite because of its color and texture, as both have similar texture and pronounced color variation". During the lithic analysis of materials observed on Souris Valley sites, Good and Fox determined that 63.1% of the manufactured lithic tools were made from SRC and only 3.8% were made from quartzite. This determination was based mostly on field observation without the benefit of microscopic examination of the material. Syms (1980) noted that SRC made up 48.1% of the utilized lithic materials and quartzites only accounted for 1.1%. Floodman and Friedman (1986) identified a similar pattern of SRC (40%) to quartzite (3%) utilization. Again, microscopic identification of the material was not performed.

Quartzite was the most frequently used material in the sites observed in the present study, in direct contrast to the earlier studies. Quartzite made up 46% of the total lithic debris (Table 2), whereas SRC only accounted for 12%. In the previous studies of different portions of the Souris River Valley, Swan River chert has been identified as the primary lithic material utilized for lithic tool reduction at archeological sites, with quartzites occurring as trace materials. Within the current project area, SRC is considered to be less important in the lithic tool reduction continuum when compared with quartzite materials. One reason for this, perhaps, is that the aborigines who inhabited this portion of the river valley were

exploiting the quartzite cobbles which occur in the glacial tills of this area more frequently than SRC cobbles for lithic reduction purposes. A more logical explanation is that there has been some misidentification of these lithic resources occurring in the field during all projects. As noted above, microscopic analysis of SRC is needed to distinguish it from quartzite materials and it is possible that local quartzite materials have been misidentified as SRC.

The remaining eight lithic materials occur locally in the glacial tills of the surrounding area (Syms 1980). They range from 11% to less than 1% of the utilized materials (Table 2).

Debitage Analysis

In addition to the lithic tool analysis, rudimentary debitage analysis was performed of materials located during the survey. Debitage analysis is usually based on one of the more obvious aspects of stone tool manufacture, the relationship between tool size and flake size. Stone tool manufacture is a subtractive procedure: the farther along the manufacturing process is, the smaller will be the flakes removed. Consequently, debitage produced while finishing or modifying an implement should, on the average, be smaller than the flakes produced during the initial shaping of the tool. This assumption is central to several recent debitage studies (Newcomer 1971; Ahler 1975; Raab et al. 1979; Burton 1980). This size assumption must be qualified. While large flakes are the product of early stage reduction, small flakes are produced throughout the manufacturing sequence (Newcomer 1971; Patterson 1982; Patterson and Sollberger 1978).

All lithic debitage encountered during the course of the present survey was identified according to four reduction stages: primary (P), secondary (S), tertiary (T), and shatter (IMACS 1986). The debitage materials from each lithic site were not collected, but were identified and listed in the field. While this information is highly subjective and there is a wide disparity in the number of waste flakes found at each site, the analysis on these materials can at least begin to give an understanding of what stages of lithic reduction were being performed at each site. The identification of the material types can demonstrate which lithic materials may have been important to the aboriginal peoples from different areas of the Souris River Valley.

A total of 181 debitage flakes were identified in three stages of flake reduction from seventeen prehistoric sites. The largest percentage of the flakes (77%) occurred in the tertiary flake category (Table 3). The second largest was the primary category with 17%, followed by secondary flakes with 6%. Sixteen sites contained lithic material, and in all but one of the cases (site 32Rv208) the tertiary flake category held the highest percentage of waste flakes. In fifteen of the sixteen sites the tertiary flakes represent 56% or more of the debitage assemblage. This suggests that late-stage manufacture of lithic tools was taking place much more frequently than were early stages of lithic production in this part of the Souris River Valley. The observed late stage manufacturing pattern observed here is

Table 2. Debitage Percentages of Stages of Reduction/Material Type.

Site #'s	Tot	KRF			SRC			Quartzite			Chert			Jasper			Moss			Agate			Chalcedony			Petrified			Wood			Petrified		
		P	S	T	P	S	T	P	S	T	P	S	T	P	S	T	P	S	T	P	S	T	P	S	T	P	S	T	P	S	T			
32RV201	22	3	1	8	2	8																												
32RV202	16	1	3	1	5																													
32RV203	4				1	2																												
32RV204	8																																	
32RV205	33	2	5	1	1	5	13	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2				
32RV212	24	1	3	1	1	4	7	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3				
32RV213	8																																	
32RV230	5	4																																
32RV206	2		1																															
32RV232	2																																	
32RV236	18	2			2	1	9	1																										
32RV210	8	1	2	2	1	1	1	1																										
32RV208	7	1	2	1	1	1	2	2																										
32RV207	9								1	1	1	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4				
32RV229	8									2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2				
32RV209	3									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
32RV233	1									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
Totals		8	1	28	2	2	17	14	6	62	3	1	19	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	3	1	1		
% of Tot Debitage		18	3	79	10	9	81	18	8	74	17	1	82	100	33	67	100	33	67	100	33	67	100	33	67	100	33	67	100	33	67	100		
Total Debitage	181	37		21		82		23			2		3																					
% of Material	100	20		12		46		11			1		2																					

Table 3
Flake Reduction Sequence

<u>Site #</u>	<u>Prim.</u>	<u>%</u>	<u>Sec.</u>	<u>%</u>	<u>Tert.</u>	<u>%</u>	<u>Total</u>	<u>%</u>
32RV201	2	9	1	5	19	86	22	100
32RV202	1	6	-	-	15	94	16	100
32RV203	-	-	-	-	4	100	4	100
32RV204	1	12	2	25	5	63	8	100
32RV205	10	30	-	-	23	70	33	100
32RV212	1	5	7	29	16	66	24	100
32RV213	-	-	-	-	8	100	8	100
32RV230	-	-	-	-	5	100	5	100
32RV235	-	-	-	-	2	100	2	100
32RV206	-	-	-	-	2	100	2	100
32RV232	-	-	-	-	2	100	2	100
32RV234	-	-	-	-	1	100	1	100
32RV236	2	11	-	-	16	89	18	100
32RV210	2	25	-	-	6	75	8	100
32RV208	4	57	-	-	3	43	7	100
32RV207	4	44	-	-	5	56	9	100
32RV229	2	25	-	-	6	75	8	100
32RV209	2	67	1	33	-	-	3	100
32RV233	-	-	-	-	1	100	1	100
Totals	31	17	11	6	139	77	181	100

consistent with findings by Good and Fox (1978), who also suggested that late stage manufacture of lithic tools was occurring in the valley and that the early stage reduction processes were occurring away from the valley. The majority of the projectile points are made from tertiary flakes which also indicates flake tool assemblages were important to the cultural groups of the valley.

Nine lithic raw material types are represented in thedebitage assemblage (Table 3). Local quartzite materials appear to make up the highest percentage (46%) of utilized raw material in the assemblage. This is probably due to it being relatively abundant in the local glacial tills of this area (Syms 1980). The second most utilized raw material is Knife River flint (KRF) at 20%. This material is commonly located in the western third of North Dakota with its most frequent source associated with the Knife River region. However, no good evidence has been found to date for a local source of KRF on the Souris River (Syms 1980). In the discussion above it has been suggested (Gregg 1987b) that secondary deposits of KRF may occur in the glacial till areas along the Souris River, but further fieldwork and laboratory analysis are necessary to locate and identify these materials. Currently, it is thought that the inhabitants of the area were either making periodic trips to the Knife River region to quarry material or were obtaining the material through a trade network (Syms 1980:55).

Swan River chert (SRC) and other local cherts are nearly even in distribution at 12% and 11% respectively. The distribution of SRC is considered to be local for southwestern Manitoba, where it occurs in stream beds and river terraces (Syms 1980:57). The other cherts are found as pebbles in local tills (Syms 1980). The other five categories of raw materials (jasper, moss agate, chalcedony, petrified wood, and porcellanite) appear in frequencies of 1-5%. These materials are of local origin and are found in glacial tills and in stream beds (Syms 1980:59-66).

The tertiary flake category is the highest per material type. Tertiary flakes range from 67-100% of thedebitage in each of the raw material type categories. Primary flakes do not make more than 33% of thedebitage in any of the raw material categories and secondary flakes do not exceed more than 11%. This suggests that late stage lithic tool manufacture was taking place more frequently than early stage reduction regardless of the material type. As stated earlier this is a very preliminary assessment of lithic materials and further test excavation of the sites in this area is needed to confirm or deny these findings.

Thedebitage material was also examined to determine if there was any correlation between specific lithic material types and temporal associations. The seventeen lithic producing sites were divided into two categories: early and late. Early sites were those which either produced projectile points which date earlier than the Middle Woodland period or had no ceramics associated with them. This results in an inherent bias because sites may be temporally later in age but may not yield diagnostic evidence identifying them as late period sites. The late site category consisted of sites which had ceramics associated with them or yielded projectile points which are temporally diagnostic for cultures later than the Middle Woodland period. Again, there is an

Table 4. Early Period Sites Percentage of Debitage Reduction Stages/Raw Material.

Early Sites	Tot.	KRF P S T	SRC P S T	Quartzite P S T	Chert P S T	Jasper P S T	Moss P S T	Chalcedony P S T	Petrified Wood P S T	Porcel- lanite P S T
32RV201	22	3	1	8	2	8				
32RV202	16	1	3	1	5					
32RV203	4			1	2	1				
32RV204	8			2	3	2				
32RV210	8	1	2	2	1	1				
32RV207	9			1	4	4				
32RV209	3		1		1	1				
Total	70	2	9	113	7224	16	2	1	1	1
% of Total	100	3	13	119	10334	11	3	1	1	1
Tot. Lithic										
Type	11		14	33	7		2	2		1
% of Tot.										
Lithic Type	16		20	47	10		3	3		1

Table 5. Late Period Sites Percentage of Debitage Reduction Stage::/Raw Material.

Late Sites	Tot	KRF	SRC	Quartzite	Chert	Jasper	Moss	Chalcedony	Petrified	Porcel-
		P S T	P S T	P S T	P S T	P S T	P S T	P S T	Wood	lanite
32RV205	33	2	5	5	13	2	2	1	P S T	P S T
32RV212	24	1	3	1	1	4	7	3		1 2
32RV213	8									1 3
32RV230	5									
32RV206	2									
32RV222	2									
32RV236	18									
32RV208	7	1	2	1	1	9	1			
32RV229	8	2				2				
32RV233	1	1				2				
Total	108	5	1	2	1	4	6	4	36	13
% of Total	100	5	1	19	2	1	4	5	33	12
Tot. Lithic										
Type	27		7							
% of Tot.										
Lithic Type	25		6							

inherent bias in that these sites may have earlier components. In this manner seven sites were categorized as early period sites and ten as later period sites (Tables 4 and 5). The three main lithic resources (KRF, SRC, and quartzite) were then examined to determine their temporal frequencies.

Good and Fox (1978) examined lithic material from a portion of the Souris River valley in a similar manner. They determined that sites which yielded ceramics (late sites) also yielded high amounts of lithic debris made from Swan River chert as compared with Knife River flint. Non-ceramic sites (early sites) yielded higher levels of debris made from Knife River flint as compared with Swan River chert.

The results of the present study indicate that neither SRC nor KRF were of primary importance during the early or late periods. Quartzite is the lithic resource which occurs with the most frequency in both site categories at 47% and 43%, respectively. In fact when comparing the two lithic resources examined by Good and Fox (1978), it is found that SRC occurs at a slightly higher percentage (20%) than KRF (16%) in early sites and at a remarkably lower percentage (6%) than KRF (25%) in later period sites. This may suggest KRF was more difficult to obtain during earlier periods than during later ones, that SRC was used as a secondary source to quartzite in earlier sites, and that KRF served the same function during later times. This pattern could have resulted from shifting trade networks of the Souris Valley inhabitants (from north in the early periods to southwest in the later periods) or possibly from changing political/economic domination of the Souris area by groups to the north or southwest. The pattern of lithic material usage might also be directly attributable to the incidence of material types in local gravels, with relatively low influence from trade networks and other factors external to the study area. Again, this is highly speculative and based on a very small and possibly biased lithic sample observed on the surface of the sites. Further work is necessary before lithic utilization patterns can be understood, including careful excavation and analysis of representative samples from subsurface contexts of sites from different temporal groups.

Lithic Tools and Material Types

Twenty-six lithic tools were recovered from thirteen sites in the project area. These tools were made from nine raw material types (Table 6). Knife River flint, quartzite, and porcellanite appear with the most frequency in the tool assemblage. Knife River flint and quartzite are equally distributed, making up 30% of the tool assemblage, respectively, whereas porcellanite comprises 16%. The other six material types are equally represented at 4% each (see the discussion above for the geographic distribution of the material types). This may indicate that KRF and quartzites were equally utilized as lithic material sources for tool production in this portion of the Souris River Valley. Utilization of porcellanite also appears with relative abundance.

The frequency of the distribution of raw material types within the lithic tool category changes significantly when the tools are viewed in the early and late site framework described above. Four sites appear

Table 6. Lithic Tool Percentages of Raw Materials/Temporal Period.

Early Sites	Tot	KRF	SRC	Quartzite	Chert	Diorite	Moss	Agate	Chalcedony	Petrified	Porcel-	lanite
32RV201	1	1P										
32RV202	2	1P										
32RV210	1	1										
32RV209	1	1										
Subtotal	5	4			1							
% of Lithic												
Type	100	80			20							
121												
Late Sites	Tot	KRF	SRC	Quartzite	Chert	Diorite	Moss	Agate	Chalcedony	Petrified	Porcel-	lanite
32RV205	2		1P									
32RV212	11	2										
32RV213	1	1P										
32RV230	1	1										
32RV223	1						1					
32RV236	1		1P									
32RV208	2			2								
32RV229	1			1								
32RV233	1						1P					
Subtotal	21	4	1	7	1	1	1	1	1	1	4	
% of Lithic												
Type	100	18.5	5	33	5	5	5	5	5	5	18.5	
Total Lithic												
Tools												
% of Lithic												
Type												

P=Projectile Point

in the early site category, with a total of five tools. Only KRF and quartzite are represented in the samples. Knife River flint appears to be the material of choice in the context of early period sites, comprising 80% (4 of 5) of the total. Of the tools made from KRF, 50% are bifacially worked. Tools made from quartzite appear in a 20% frequency (1 of 5). The quartzite category consists of one bifacially worked projectile point. A total of three projectile points are present in the early site category, two of which are made from KRF and one from quartzite. This represents a distinct change from the pattern of raw material utilization observed in the debitage analysis of early period sites, which may indicate that quartzite was the predominate material utilized and KRF was of secondary importance. However, the lithic tool sample is very small from the early period sites and probably minimally represents a the lithic tool assemblage which exists at each site. Other tools may remain in a buried context which would alter the perceived pattern, and surface collection of tools by local collectors prior to this survey may have skewed the observable tool/debitage relationship.

A different pattern of lithic utilization is observed in the late period site category. Three raw material types are relatively abundant within this category: KRF, quartzite, and porcellanite. The pattern of lithic utilization differs from that of the early sites in that quartzite is the dominant material used for tool manufacture at 33% (Table 6). KRF and porcellanite are equally represented at 18.5%. The other five raw material types are minimally represented at 5% each. This pattern of lithic material exploitation may indicate that quartzite was the material of preference during later periods or that because of an inability to obtain KRF, quartzite became the dominant raw material type.

No preference concerning raw material types is evident in the manufacture of projectile points during these later periods. Six projectile points are represented in the late period artifact sample, and all six points are manufactured from different materials. This small sample may indicate that utilization of lithic raw materials was more diverse for tool manufacture in the later periods than in earlier times, and that raw materials from local sources were used more rather than imported materials. Again, this could be due to a breakdown in trade networks for non-native materials such as KRF or SRC. These patterns of lithic resource utilization are consistent with those found in the debitage analysis of late period sites.

Good and Fox (1978) examined lithic materials recovered from portions of the Souris River valley in a similar manner. They found that KRF was employed more frequently for the manufacture of unifacial tools than bifacial tools. This pattern holds true for the present study; of eight tools made from KRF, 63% are unifacial and 37% are bifacial. Good and Fox (1978) also suggest that KRF ranks second in importance to SRC for the manufacture of lithic tools. The results of the present study suggest that KRF shares the secondmost ranking with porcellanite, both of which occur with a frequency of 18.5% (Table 6). Good and Fox (1978) observed that SRC was the most frequently occurring raw material for lithic tool manufacture, in the present study SRC occurs in a minimal frequency (4%) in lithic tool manufacture.

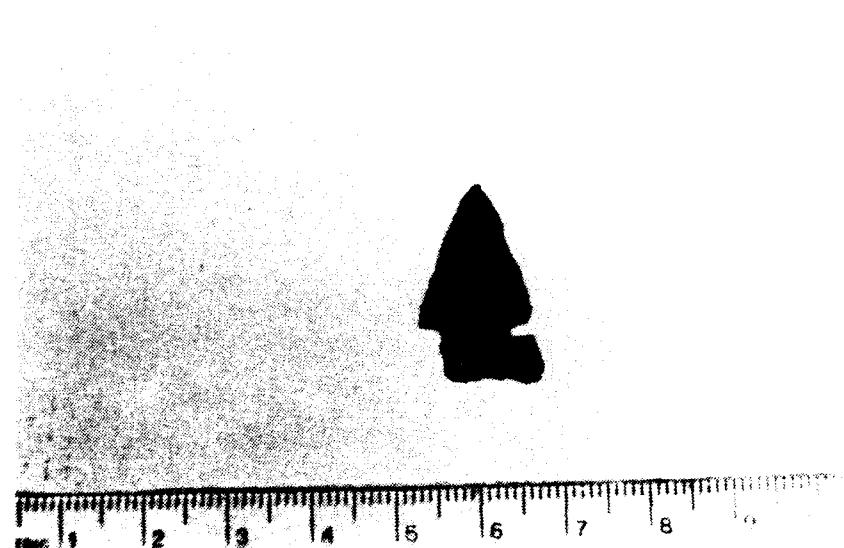
Quartzite occurs much more frequently (33%) in the lithic tool categories for all sites. As discussed above, this could be the result of a misidentification of SRC as quartzite and vice versa, especially if no microscopic analysis of the materials were performed, as was the case with both the present study and that of Good and Fox.

Lithic Discussion

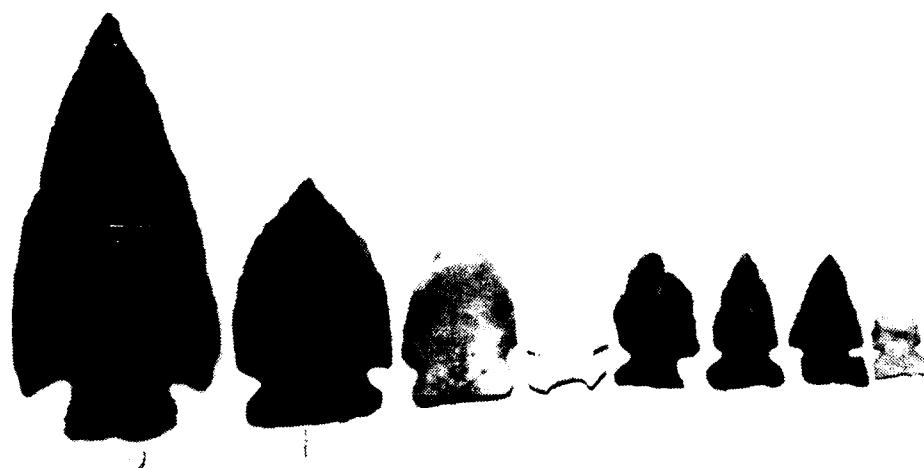
The debitage and lithic tool analyses indicate that there is no correlation between the types of raw material which were exploited and the temporal span of a particular site. Both the early and late sites exhibit primary use of quartzite as the main material in the lithic reduction sequence, with KRF and porcellanite being secondarily utilized. This pattern differs significantly from patterns indicated in previous work for this area (Good and Fox 1978, Floodman and Friedman 1986). Good and Fox (1978) suggested that there is a strong correlation between KRF and non-ceramic (early) sites, that there is a strong correlation between SRC and ceramic (late) sites. Good and Fox appear to have based their conclusions on invalid chi-square tests of non-random samples. The lithic debitage sample for the chi-square was obtained through observation of materials in the field, which by definition cannot be considered a random selection process. The material was selected by means of observation and recollection, which is subject to the innate biases and mistakes of the researcher, rather than by means of application of a table of random numbers or some other such device to define reliable, specific samples from each of the sites. The same is true for the chi-square test Good and Fox applied to lithic tools. The tool sample was based on all tools which were collected from the field. These tools were obtained not randomly but subjectively by the researchers as they were found. Reliance on faulty chi-square tests may partially account for the distinct differences between previous projects and the present analysis in observed temporal lithic utilization patterns.

The present lithic utilization patterns indicate little distinction between early and late sites as to the raw materials used for the tool reduction process. Local lithic materials such as quartzite, porcellanite and moss agate were readily employed in all phases of lithic reduction. Nonlocal materials such as KRF and SRC were employed on occasion, but not with high frequency over time. KRF was previously thought to be of particular importance in early periods of the Souris River Valley but in the present analysis was found to be of only secondary importance when compared with quartzite. In fact KRF occurs less frequently than SRC in the early period sites of the present study. In later period sites, quartzite remains the most frequently utilized material but KRF does significantly increase in frequency, particularly when compared with SRC. This pattern is opposite to patterns previously suggested, where KRF is supposedly utilized less frequently than other materials (Good and Fox 1978, Floodman and Friedman 1986). The patterns observed during the present study suggest that the people inhabiting these sites were utilizing local materials more frequently than nonlocal materials during late stage lithic reduction regardless of the temporal period.

Figure 16

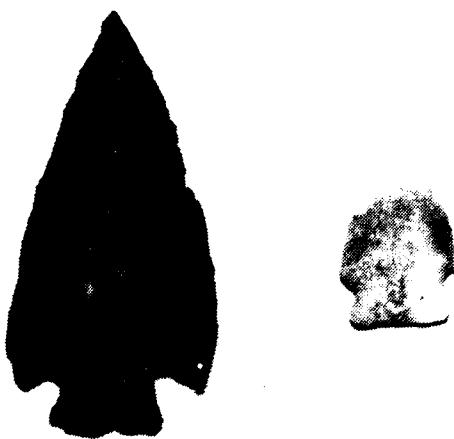


32RV229 - Chipped Stone Tools - Plains Side-notched Projectile Points



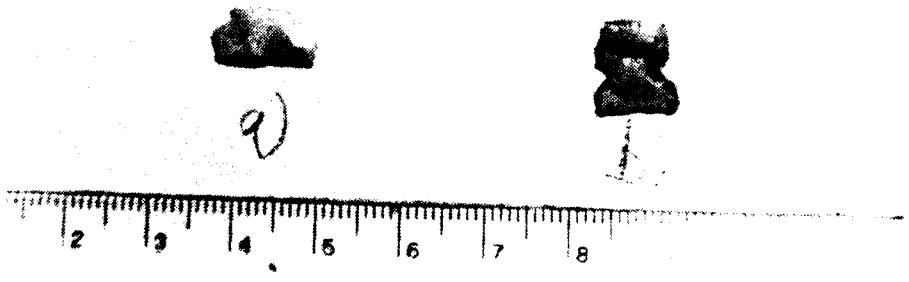
Projectile Points from study area, in ascending age of point type:
a) Pelican lake; b & c) Besant; d) Avonlea; e) Prairie side-notched;
f, g, h, & i) Plains side-notched

Figure 17



32RV202 - Chipped Stone Tools -

a) Pelican Lake projectile point/cutting tool; b) Besant projectile point



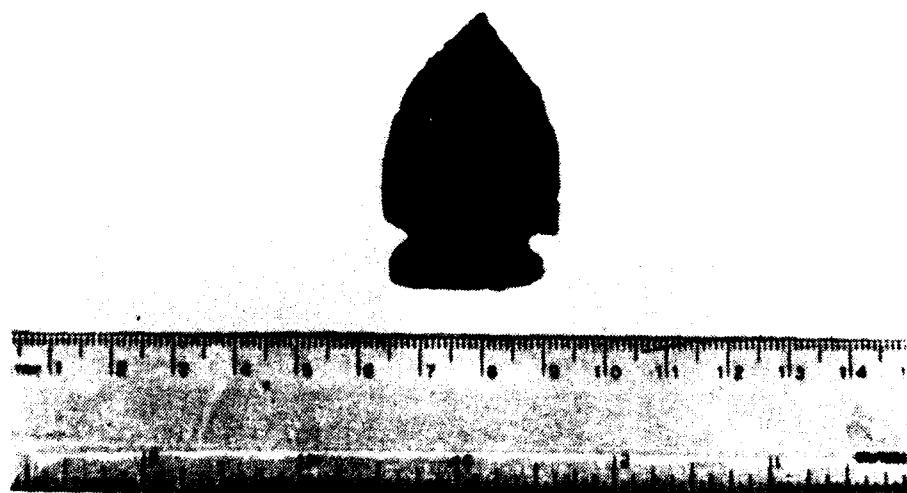
32RV205 - Chipped Stone Tools -

a) Plains side-notched projectile point - base
b) Plains side-notched projectile point - tip missing

Figure 18

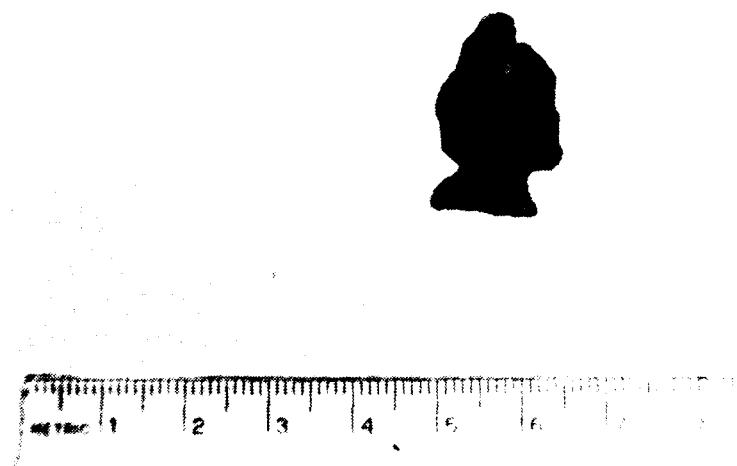


32RV212 - Chipped Stone Tools -
a) Plains side-notched projectile point; b-e) Cutting tools

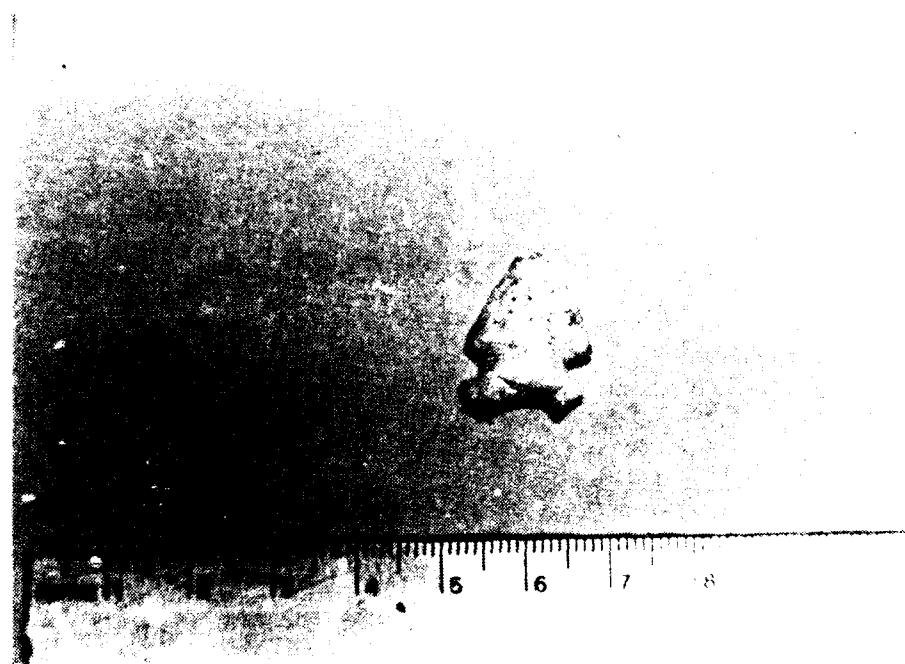


32RV201 - Chipped Stone Tools - Besant projectile point/cutting tool

Figure 19



32RV213 - Chipped Stone Tools - Prairie side-notched projectile point



32RV208 - Chipped Stone Tools - Avonlea projectile point

Based on diagnostic projectile points, the sites within this portion of the Souris River Valley range in time from the Middle Prehistoric period (5500 B.C.-A.D. 700) to the Late Prehistoric period (A.D. 700-1740). The Middle Prehistoric period is represented by the Plains Archaic tradition Pelican Lake (1500 B.C.-A.D. 250) projectile point recovered from 32RV202, by the two Middle Woodland tradition Besant (100 B.C.-A.D. 750) projectile points recovered from 32RV201 and 32RV202, and by a Carmichael Wide-eared variety of Avonlea (A.D. 90-700) projectile point which was recovered from 32RV236. Because Besant and Pelican Lake points, which overlap temporally, were recovered from 32RV202, it is possible that two different cultural groups were occupying the Souris River Valley at the same time, and perhaps trade was occurring at this site to obtain one or more of the projectile point types. These projectile points were recovered from a cultivated field and it is possible that distinct components of the site have been mixed. A third possibility is that this site represents a single cultural manifestation which manufactured two different types of projectile points/knives for different functional purposes. Controlled excavation of this site may help to sort out these hypotheses.

The Late Prehistoric period is represented by five diagnostic projectile points. The first of these is a Prairie (A.D. 700-1750) side-notched projectile point which was recovered from site 32RV213. Although this projectile point type represents both the Middle Woodland and Plains Village traditions, the projectile point recovered from 32RV213 is thought to represent a Late Woodland occupation, based on the types of ceramics which were recovered with it. However, these artifacts were recovered from a disturbed context and may represent more than one component from this site. The other four projectile points (two from 32RV205, one from 32RV212, and one from 32RV233) are all Plains side-notched variety projectile points. These projectile points range from the Late Prehistoric period to the Historic period and represent a Plains Village tradition cultural pattern. This cultural tradition temporally ranges from A.D. 900 into the Historic period, which begins in North Dakota at about A.D. 1740.

The results of the present analyses are preliminary, and controlled excavation of the sites is needed to determine if these observed patterns are real or just the result of subjectively obtained material from the field.

CERAMIC ANALYSIS

Comparative Ceramic Analysis Methods

The ceramics collected from sites during the current project were compared with pottery collections from sites in a wide ranging area. Comparisons were made with "hands-on" collections housed at the State Historic Society of North Dakota (SHSND) Heritage Center in Bismarck, North Dakota, and with written-pictorial descriptions contained in published and unpublished manuscripts. Compared attributes included paste attributes (temper, texture, and color), sherd thickness, surface and decorative treatments, and lip, rim, and vessel forms.

The "hands on" ceramic collections used for comparative purposes at the SHSND include representative samples of ceramics from the Middle Missouri and Coalescent traditions and the Scattered Village complex. These samples were recovered from excavated village sites along the Missouri River trench in central North Dakota and from Plains Village tradition sites in eastern North Dakota. Thad Hecker's Canadian and Souris River Basin collections, which contain both unassigned and known ware types, were also examined. These collections are discussed below.

The Paul Brave site (32SI4) is an expression of the Extended Middle Missouri variant (EMM). This site is located along the west bank of the Missouri River in southern Sioux County, North Dakota and is immediately north of the South Dakota border. This collection is dominated by straight and flared Riggs ware and S-shaped Fort Yates ware rim sherds. The body sherds of the collection are simple-stamped or smoothed.

The Huff site (32MO11) is a manifestation of the Terminal Middle Missouri variant (TMM) located along the west bank of the Missouri River in northern Emmons County, North Dakota approximately 15 miles south of Bismarck. The collection is dominated by straight and flared Riggs ware, S-shaped Fort Yates, and Le Beau ware rim sherds. The body sherds of the collection are predominantly simple-stamped and smoothed, however, some check-stamped sherds were noted.

The Bagnell site (32OL16) was assigned to the EMM by Lehmer (1971), but Lovick and Ahler (1982) have tentatively reassigned it to the Scattered Village complex. This village site is located along the west bank of the Missouri River in northern Oliver County, North Dakota, just south of the community of Hensler. The dominant rim sherd types of this collection consist of straight and flared forms and an S-shaped form. Sherds lips are often flattened and consist of L- and T-shaped forms. The body sherds are simple-stamped or smoothed. Check-stamped sherds also occur in a high percentage.

The Demery site (39CO1) is an Extended Coalescent variant (EC) manifestation located along the west bank of the Missouri River in northern Corson County, South Dakota immediately south of the North Dakota border. All the sherds are thin walled, fine textured, and very compact. The straight rim sherds usually are decorated with fine, well executed incised lines. Many neck and shoulder sherds display elaborate incised motifs. Numerous strap handles and lugs were noted

on the sherds of this collection. The body sherds are predominantly simple-stamped or smoothed.

The Fire Heart Creek site (32SI2) is an expression of the Disorganized Coalescent variant (DC) located on the west bank of the Missouri River in southern Sioux County, North Dakota. The rim sherds of this ceramic collection are dominated by Stanley Braced Rim ware. The neck sherds are often brushed, and body sherds are simple-stamped or smoothed.

The Biesterfeldt site is a manifestation of the Post-Contact Coalescent variant located along the Sheyenne River valley in Ransom County, North Dakota. The rim sherds of the collection are predominantly flaked and beveled or braced with a high percentage of cord-wrapped rod impressing. The body sherds are predominantly simple-stamped, but numerous linear check-stamped sherds were observed.

The Schultz site is located in the Sheyenne River Valley in Ransom County, North Dakota. This collection was tentatively assigned to the Stutsman focus by Wheeler (1963). The rim sherds are predominantly thin walled, straight and vertical, often displaying cord-marked surface treatments with most the the decoration confined to the lip-top or the extended lip-rim juncture.

Hecker's "Souris River, 1942" collection is unprovenienced beyond its Souris Basin designation. In addition, the ceramics of this collection are all unassigned to specific ware types. Many of the rim sherds display flattened lips, with L, inverted L, or T-shapes. The lips often overhang and are decorated with cord-impressions, dentate stamps, tool impressions, and finger-nail impressions. The lips are occasionally beveled and have dentate stamp and cord-wrapped rod impressions. The surface treatments are predominant ly cord-marking, possibly fabric-impressions, or smoothing. This collection displays a strong Woodland influence with obvious similarities to Mortlach aggregate wares.

Hecker's "Canadian collection" was procured from the NE1/4 of Section 19, T.23N., R.22W. Most of the rim sherds have flattened lips with expanded rims. The lip tops are decorated with cord-wrapped rod impressions or dentate stamps. Rows of punctates are also relatively common around the upper rim portions. The majority of rim sherds are smoothed, but cord-roughened rims are frequent, and minor amounts of check-stamped and fabric-impressed rim sherds were also observed. A number of the rims may be assignable to Blackduck ware. This collection represents more than one Woodland tradition complex and displays some similarities to Mortlach aggregate wares.

Numerous ceramic collections described and illustrated in published and unpublished archeological manuscripts were also used in the comparative analysis. Descriptions and illustrations of pottery from a private collection, surface collections, and subsurface test collections along the Upper Souris River valley in North Dakota (Floodman et al. 1985,; Floodman and Friedman 1986; Good and Fox 1978) were examined. Descriptions of ceramics from the Souris River Basin in Canada (Syms 1977, 1979, 1980) were compared with the ceramic recovered

during the present project. Numerous excavated Plains Village ceramics collections from along the Missouri River Trench (e.g. Thiessen 1975; Sperry 1968; Wood and Woolworth 1964; Lovic and Ahler 1982; Lee 1980) were studied, as well as collections from Plains Village manifestations in eastern North Dakota (Wheeler 1963; Dahlberg 1977; Gregg et al. 1987; Wood 1971). Illustrations of Woodland ceramics from Minnesota and the Northeastern Plains (Anfinson 1979; Neuman 1975; Wood and Johnson 1973) were also used in the comparative process. Finally, reports from sites reflective of the Mortlach aggregate (Schneider and Kinney 1978; Joyes 1973; Wettlaufer 1955, 1960; Johnson 1977; Finnigan 1988) were consulted and used for comparative purposes.

The following are brief descriptions and analyses of the ceramic collections recovered from the sites in the current project area.

32RV205

This collection consists of four body sherds of unknown location and a small shoulder fragment indicative of a slightly constricted neck with a straight to slightly flared rim. All the sherds are tempered with moderate to heavy amounts of grit particles of crushed granite. These grit particles range from 1.0-2.5 mm in size with an average size of approximately 1.5 mm. Body sherds range from 4.1 mm to 8.4 mm in thickness, and all but one sherd is at least 6.0 mm thick. The shoulder-rim fragment measures 4.0 mm at the shoulder and expands to 5.2 mm at the rim base. Textures appear to vary, with the thickest sherd containing a blocky, friable core and slightly gritty surfaces, while the thinner sherds are only slightly blocky, harder and more compact. Exterior surface colors range from brown (7.5YR5/4) to very dark gray (7.5YR3.0), while the interior surfaces and cores are very dark gray (7.5YR3.0). Three of the four body sherds and the shoulder-rim fragment have surface treatments of parallel cord markings. All of these markings have been partially obliterated by smoothing. Parallel cord-marked sherds of this nature are usually referred to as cord roughened. The cord marks on the shoulder-rim fragment are oriented vertically to the vessel orifice. The remaining body sherd once had a surface treatment but was smoothed to such an extent that the surface treatment can no longer be determined. Two of the body sherds contain a black colored, carbonized substance on the interior, indicating it may have been used in cooking.

Comparative Analysis:

Assignment of a small number of body sherds to a particular tradition, let alone a specific ceramic ware is very difficult. Considering that most of these sherds are cord-marked and considering the geographic location of the site, the sherds are probably from the Woodland Tradition. Representative sites of the Mortlach aggregate also contain cord-marked body sherds (Joyes 1973; Schneider and Kinney 1978; Finnigan 1988), as do some wares of the Stutsman Focus, an expression of the Plains Village Tradition (Wheeler 1963).

32RV206

This collection consists of eight body sherds, of which only one

has been decorated. All the sherds are tempered with moderate to heavy amounts of crushed granite grit particles, with most of them falling into the heavy grit category. These grit particles range from 0.5-2.5 mm in size with an average size of approximately 1.5 mm. The body sherds range from 4.2-7.5 mm in thickness and average about 5.88 mm. Sherd textures range from slightly blocky to blocky. The sherds are hard and compact with dull surfaces and are slightly gritty to the touch. The interior and exterior surface colors range from light yellowish brown (10YR6/4) to very dark gray (10YR3/1). The core colors range from yellowish brown (10YR6/4) to very dark gray (10YR3/1). The majority of the sherd cores are the latter color. Surface treatments on the undecorated body sherds vary and include three smoothed (42.8%), two simple-stamped (28.5%), one linear check-stamped (14.2%), and one fabric-impressed (14.2%). The decorated body sherd is also smoothed. The decoration on this sherd consists of two thin and narrow, parallel, incised lines. These lines measure approximately 0.5 mm in width, 0.25 mm in depth, and are spaced about 10 mm apart. The lines were incised into hardened clay just prior to or after firing. This sherd is probably a shoulder fragment. Syms (1980) refers to a similarly decorated specimen found on the Souris River in southwest Manitoba as "engraved".

Comparative Analysis: Linear check-stamping appears to be a rare form of surface treatment in the Northern Plains region. Linear check-stamping is similar to simple-stamping, in that both the methods produce rectangular shaped lines and grooves on the ceramic surface. The difference between the two is that linear check-stamping contains parallel striations within the grooves creating a "ladder effect", and simple-stamping does not. Wood (1971:46) stated that there were "so few linear check-stamped sherds in sites along the Missouri River (largely near Bismarck, N.D.) that they have yet to be reported in print". Wood (ibid) continued that "Eldon Johnson informs me that linear check-stamping is not known in Minnesota". Linear check-stamping accounted for more than 3% of all body sherds at the Biesterfeldt site along the Sheyenne River in south-central North Dakota (Wood 1971:47). Linear check-stamping has also been reported from the Hendrickson III site, a Plains Village manifestation along the James River, south of Jamestown, N.D. (Dahlberg 1977). None of the consulted literature describing ceramic collections from the Plains Village or Woodland Traditions mentions linear check-stamping; however, this surface treatment was present at the Evans site, a Mortlach aggregate site (Schneider and Kinney 1978). The present study's ceramic collection differs from the Biesterfeldt collection, as it contains a fabric impressed body sherd. Viewed as a single component, this collection shares characteristics with hybrid ceramic collections which represent the Mortlach aggregate. Taken individually, this collection could include components of both the Plains Village and Plains Woodland Traditions.

32RV208

The ceramic collection from this site consists of one undecorated body sherd. The specimen is tempered with sparse amounts of crushed granite grit particles. The particles range in size from 0.5-1.5 mm and average about 1.0 mm. The sherd has been smoothed and measures 3.9

mm in thickness. The core is slightly blocky and laminated, which has caused a portion of the sherd to split in horizontal cleavage. The exterior surface is very pale brown (10YR7/4), and the interior surface is reddish yellow (7.5YR7/6). The core is gray (7.5YR7/0).

Comparative Analysis: This sherd is not considered to be culturally diagnostic.

32RV212

Body Sherds:

The site collection contains 66 undecorated body sherds. All the body sherds are tempered with grit consisting of crushed granite. The amount of temper and size of the particles varies with individual sherds. Sherds typically contain moderate amounts of temper (25-35%) which measure approximately 1.5 mm in size. Some sherds contain heavier amounts (<50%) or lighter amounts (10%) of temper which measure as much as 3.5 mm or as little as .25 mm in size. The body sherds range from 3.5-7.5 mm in thickness, with the average sherd thickness at 4.83 mm. Sherd core textures range from fine to blocky, with the typical sherd core appearing only slightly blocky in texture. Most body sherds are relatively hard and compact, although some sherds have friable and laminated cores which tend to split in horizontal cleavage. Temper particles occasionally extrude into the surfaces, providing a gritty feel and appearance. Exterior surface colors range from reddish yellow (7.5YR7/6) to black (7.5YR2/0). The interior surface colors have a similar range, with the darker colors being more prominent. With few exceptions the cores are black (7.5YR2/0) or very dark gray (7.5YR3/0). The undecorated body sherds from this collection display considerable variation in surface treatment. Thirty-eight (57.5%) of the 66 undecorated body sherds are smooth or have been smoothed to the extent that the original surface treatments are indistinguishable. Eight (12.1%) are cord-marked or roughened, seven (10.6%) are fabric-impressed, seven (10.6%) are check-stamped, and six (9.1%) are simple-stamped. Three of the fabric-impressed sherds display a "sprang", which is "a form of springy thread twisting" (Syms 1980:39-40). Another fabric-impressed sherd displays a fine example of open strand twining, as illustrated by Syms (1980:40-41). Sherds displaying different surface treatment appear to be indistinguishable from one another in temper, texture, color, and thickness. The cord-marked sherds display burnishing, a rare characteristic in this collection. Twenty (30.3%) of these sherds contain a carbonized substance which is usually on the interior surfaces, an indication of a cooking function.

Comparative Analysis: The body sherds in this collection display wide variance, particularly in surface treatment. If these sherds represent a single component, the corresponding ceramic tradition must be viewed as extremely hybrid and similar to Mortlach aggregate wares (Joyes 1973:60; Schneider and Kinney 1978:7; Finnigan 1988:32). Analysis of the rim sherds from this collection, however, reveals little correspondence to rim forms and decorative techniques generally associated with Mortlach ceramics. Taken individually, the surface treatments displayed in the collection indicate the possibility of numerous named and unnamed ceramic traditions of the Northern Plains.

Smooth body sherds are found in varying amounts in the Mortlach aggregate and in various complexes of the Plains Village and Plains Woodland Traditions. Check-stamping is found in the Mortlach aggregate, and in various complexes of the Plains Village Tradition (particularly the Scattered Village Complex), and in Late Prehistoric manifestations in southern Canada such as the Cluny Complex (Forbis 1977). Simple-stamping most frequently is associated with the Plains Village Tradition and is found occasionally in the Mortlach aggregate and in small numbers in the Woodland Tradition. Cord-marking or roughening is most frequently associated with the Woodland Tradition but is found also in the Mortlach aggregate and to a lesser degree in the Plains Village Tradition, notably from Lisbon Ware, a ceramic manifestation of the Stutsman Focus (Wheeler 1963). It is also found in wares representative of the Initial Middle Missouri variant. Various types of fabric-impressions are present in many named and unnamed complexes of the Woodland Tradition and occasionally on sherds assigned to the Mortlach aggregate. The possibility also remains that the body sherds of this collection represent a single unnamed ceramic complex.

Decorated Body Sherds:

Five body sherds are decorated with incised lines. None of the sherds are large enough to determine a complete decorative motif, but four sherds contain parallel incisions which may represent continuous bands. One of these four contains a similar incised line which intersects one of the bands at an oblique angle. The fifth sherd contains at least two series of thin, short, incised lines, off-set from one another at widths of approximately 2 mm. Three of the five sherds contain V-shaped incisions executed by use of a sharp pointed object, and the two remaining sherds contain broader, U-shaped incisions made with a blunt ended tool. All of the decorations were executed on smooth surfaces. Slight concave curvatures on the interior surfaces of these sherds may indicate that they represent decorated shoulder elements. Two of the sherds are also highly burnished.

Rim Sherds:

Rim sherds from nine different vessels were recovered from site 32RV212.

Vessel #1

Temper: Moderate amounts of crushed granite grit. Particles range in size from 0.5-3.0 mm.

Texture: Core is blocky, while the exterior and interior surfaces are dull.

Color: Exterior and interior surfaces are pale brown (10YR6/3). Interior surface has black (7.5YR2/0) carbonized remains on it.

Surface Treatment: Both the exterior and interior surfaces are smoothed.

Thickness: Lip = 9.0 mm. Rim = 4.9 mm.

Lip Form: The lip is round and inverted.

Rim Form: The rim is incurvate and probably represents the upper portion of an S-shaped rim.

Decorative Treatment: The decoration is limited to the exterior lip/rim juncture. It consists of an elongated oval-shaped tool impression. This decoration appears to have been performed by impressing the damp clay with the edge of a curved, pointed object, possibly a stick.

Comparative Analysis: This specimen is similar to the upper portions of a small number of rims observed in collections from the Huff and Paul Brave sites and classified as Fort Yates Ware. The rim also shares characteristics with two illustrated rims from the Shermer site which are classified as "Fort Yates Decorated Lip" (Sperry 1968:142, 145).

Vessel #2

Temper: Moderate amounts of crushed granite grit. Particles range from 1.0-3.0 mm in size.

Texture: Core is blocky and laminated. Numerous grit particles extrude on the exterior surface creating a gritty texture.

Color: Exterior surface is yellow (10YR7/0). Interior surface is grayish brown (10YR5/2). Core color is dark gray (7.5YR4/0).

Surface Treatment: The exterior and interior surfaces are smoothed. Horizontal striations appear on both surfaces where grit particles have dragged during smoothing.

Thickness: Lip undulates between 9.7 and 5.5 mm in thickness, while the rim generally is a uniform 6.0 mm and expands to approximately 7.5 mm at the neck.

Lip Form: The exterior portion of the lip undulates and is extremely "wavey" when viewed from above.

Rim Form: The rim is straight and vertical.

Rim height: 27.8 mm.

Decorative Treatment: Rim decoration is limited to the lip top and exterior lip-rim juncture. The decoration was produced by impressing a square-edged tool into the lip top and jabbing the tool toward the exterior. The lip portion between the impressions was then pinched between finger and thumb to produce a wavy effect along the exterior lip-rim junction when viewed from above. The orifice does not undulate, so a true scalloped effect is not achieved. An excess amount of clay extrudes from the exterior lip-rim juncture forming a

continuous series of large "beads".

Comparative Analysis: The decorative technique exhibited by this specimen is atypical of any of the studied ceramic wares. One sherd examined from the Schultz site which was included in Lisbon Flared Rim Ware (Wood 1962:231) has a striking resemblance to this specimen. The Schultz site rim sherd was decorated by impressing the interior lip-rim juncture with a square-sided tool and jabbing outward, creating a "bead" effect at the exterior lip-rim juncture. The Schultz site specimen was not pinched, however. Beaded lips are found in ceramic collections from Missouri River sites assigned to the Scattered Village Complex (Lovick and Ahler 1982).

Vessel #3

Temper: Moderate crushed granite grit ranging in size from 0.5-1.0 mm.

Texture: The core is slightly blocky. The interior and exterior surfaces are dull and slightly rough, and grit particles occasionally extrude into the surfaces. The interior surface has a thick layer of carbonized material on it.

Color: Exterior surface is dark gray (7.5YR3/0). The interior surface and core are black (7.5YR2/0).

Surface Treatment: The interior and exterior surfaces are smoothed.

Thickness: Lip = 5.3 mm. Mid-rim = 9.0 mm. Neck = 9.2 mm. Lip Form: Flattened.

Rim Form: Straight.

Rim Height: 41.7 mm.

Decorative Treatment: The rim decoration is limited to the lip top. The decoration consists of a series of thin tool impressions placed diagonally atop the lip and parallel with each other. The impressions are approximately 1.0 mm in width, 0.5 mm deep, and spaced approximately 1.0 mm apart. The edge of a small rounded object, such as a stick, appears to have been used to impress the decoration onto the lip.

Comparative Analysis: The specimen is virtually indistinguishable from rim sherds found in the Paul Brave site collection which are labeled as "Riggs Straight Rims". While rim sherds assigned to Riggs Ware are typically uniform in thickness (Thiessen 1975), a minor number of observed Riggs rims from the Paul Brave site significantly increase in thickness from the lip to the mid-rim. This occasional tendency is illustrated in rim profiles of Riggs Ware from other sites (Thiessen 1975; Sperry 1968). Ann Johnson notes this characteristic on a rim from group 1 of the Curtis Ones collection, which she likens to the Middle Missouri Tradition, especially the Extended Middle Missouri variant (Floodman et al. 1985).

Vessel #4

Temper: Heavy amounts of crushed granite grit. The particles range in size from 0.5-2.0 mm.

Texture: Core is blocky, whereas the exterior and interior surfaces are dull and slightly rough due to grit particles which extrude to the surfaces.

Color: Exterior surface is very pale brown (10YR7/3), and the interior surface is predominantly light yellowish brown (10YR6/4). The core is dark gray (7.5YR4/0).

Surface Treatment: The exterior and interior surfaces are smoothed.

Thickness: Lip = 4.1 mm. Mid-rim = 5.0 mm. Neck = 4.3 mm. The thickness expands considerably from the lip to a point midway between the lip and neck, then tapers off.

Lip Form: Flattened.

Rim Form: Flared to the exterior.

Rim Height: 20.0 mm.

Decorative Treatment: The rim is undecorated.

Comparative Analysis: Like vessel #3, this specimen shares many characteristics with Riggs Ware from the Paul Brabe collection and with Riggs Ware from other Extended and Terminal Middle Missouri variant sites in North Dakota (Thiessen 1975; Sperry 1968).

Vessel #5

Temper: Contains moderate amounts of crushed granite grit. The particles range in size from 0.5-2.0 mm.

Texture: The core is slightly blocky and the exterior and interior surfaces are dull and slightly rough due to grit particles extruding into the surfaces.

Color: The exterior and interior surfaces are light yellowish brown (10YR6/4) and the core is dark gray (7.5YR4/0).

Surface Treatment: A few unobliterated simple-stamp marks are near the exterior lip-rim junction.

Thickness: The lip undulates between 5.2 and 6.2 mm. Mid-rim = 8.2 mm. Neck = 8.6 mm. The thickness expands from the lip to a point midway between the lip and neck and then becomes generally uniform.

Lip Form: The lip undulates and approaches a scalloped effect when viewed from above.

Rim Form: The rim has an incipient S-shape which was created when the decoration was executed on the lip.

Rim Height: 35.3 mm.

Decorative Treatment: The decorative treatment is limited to the lip area. The edge of a relatively broad, curved object was impressed onto the lip from the interior lip-rim juncture. The portion between these impressions was pinched between the thumb and finger, producing a scalloped effect along the rim. Thumbnail impressions are present along the exterior lip-rim juncture.

Comparative Analysis: This sherd has attributes compatible with Plains Village Tradition ceramics in terms of paste characteristics, thickness, and surface treatment. The decorative technique is similar to pinched rim varieties found on straight rim sherds such as Riggs Ware. The incipient S-shape was observed on a small number of rims classified as Riggs Ware and from illustrations of Riggs pottery (Thiessen 1975:B19). Ann Johnson has likened shallow S-shaped rim forms from Souris River collections immediately south of the present study area to Coalescent manifestations (Floodman *et al.* 1985; Floodman and Friedman 1986).

Vessel #6

Temper: Contains moderate grit consisting of crushed granite. Particle sizes range from 0.5-1.5 mm.

Texture: The core is slightly blocky. The exterior surface is highly burnished, whereas the interior surface is only slightly burnished.

Color: The exterior surface and core are black (10YR2/0), and the interior surface is mottled black (10YR2/0) and brown (10YR5/3).

Surface Treatment: The rim exterior has been smoothed but contains a series of horizontal striations apparently created when the wet clay was wiped or scraped. The existing small portion of the neck element contains partially obliterated parallel cord marks, which were probably created using a cord-wrapped paddle.

Thickness: Lip = 4.8 mm. Mid-rim = 6.2 mm. Neck = 7.0 mm. The rim tapers gradually from the neck to the lip.

Lip Form: Flattened.

Rim Form: Straight.

Rim Height: 36.9 mm.

Decorative Treatment: Decorative treatment is absent on this specimen.

Comparative Analysis: This specimen is very similar to many of the rims which were observed in the Schultz site collection and classified as Lisbon Ware (Wood 1962). The majority of Lisbon Ware rims are cord-marked or roughened, but some are smoothed and some are highly burnished. This specimen may represent a Late Woodland Tradition manifestation, but the tapered lip appears to be uncharacteristic of

Late Woodland vessels. Cord-roughening is very uncommon on pottery included in the Middle Missouri Tradition, except ceramics assigned to the Initial Middle Missouri variant.

Vessel #7

Temper: The temper consists of heavy amounts of crushed granite grit, with particle sizes ranging from 0.5-2.5 mm.

Texture: The exterior and interior surfaces are slightly burnished, and the core is slightly blocky.

Color: Both the interior and exterior surfaces and the core are black (7.5YR2/0).

Surface Treatment: The surfaces are both smoothed.

Thickness: Lip = 5.1 mm. Mid-rim = 4.7 mm. Neck = 5.2 mm. The rim thickness is generally uniform from the lip to the neck.

Lip Form: Lip is round and extrudes slightly toward the exterior surface.

Rim Form: Slightly flared.

Rim Height: 32.6 mm.

Decorative Treatment: The decoration is limited to the lip top and consists of a series of elongated, oval-shaped tool impressions which are placed at oblique angles to the lip edges and parallel to each other. The impressions measure approximately 4.0 mm in length, 1.5 mm in width, and 0.5 mm in depth.

Comparative Analysis: Like vessel #6, this specimen is very similar to rims in the Schultz site, which are classified as Lisbon Ware (Wood 1962). As with this specimen, many Lisbon Ware rim sherds are "high", yet appear thin, almost delicate, in profile. This specimen could also represent a manifestation of either the Woodland or Middle Missouri Traditions.

Vessel #8

Temper: Heavy amounts of crushed granite grit are present. The grit particles range in size from 0.5-2.0 mm in size.

Texture: The core is blocky. The exterior is burnished, but the interior is slightly rough due to grit particles which extrude onto the surface.

Color: The exterior surface is dark gray (10YR4/0). The interior surface is very pale brown (10YR7/4), and the core is black (7.5YR2/0).

Surface Treatment: Smoothed.

Thickness: Lip = 5.5 mm. Lowest portion of rim is 5.3 mm in

thickness.

Lip Form: Rounded and slanted toward the interior.

Rim Form: This small specimen appears to be the upper portion of a high, S-shaped rim.

Decorative Treatment: Decoration is limited to the exterior surface and consists of a series of tool-incised lines which measure approximately 2.0 mm in width and 0.5 mm in depth. The sherd is too small to provide a detailed assessment of the decorative motif. One incised line is positioned parallel to the orifice and probably formed an upper band around the entire vessel. Below this line, two parallel lines are at oblique angles to the orifice. The incised lines may have formed a chevron motif.

Comparative Analysis: This specimen is almost identical to upper portions of numerous rims observed from the Huff and Paul Bravé sites and classified as Fort Yates Ware. There are also striking similarities between this specimen and two illustrated rims from the Shermer site which were classified as Fort Yates Incised (Sperry 1968:44). The rim form and decorative technique are also similar to a rim from the Curtis Ones ceramic collection which was said to fit within Fort Yates Ware (Floodman et al. 1985:226, 227, 233, and 240). A characteristic of some pottery assigned to the Scattered Village Complex is an increasing occurrence of tool incising on Fort Yates-like pottery (Lovick and Ahler 1982).

Vessel #9

Temper: Contains moderate amounts of crushed granite grit, with particles ranging from 0.5-3.0 mm.

Texture: The core texture is slightly blocky, while the exterior and interior surfaces are highly burnished.

Color: Both the interior and exterior surfaces as well as the core are black (7.5YR2/0)

Thickness: Lip = 7.4 mm. Lowest portion of the rim is 5.8 mm.

Lip Form: Flattened.

Decoration: The decoration is limited to the lip top because very little of the rim portion is present. The decoration consists of teardrop-shaped impressions which measure approximately 5.0 mm in length, 3.5 mm in width, and 1.0 mm in depth. These impressions are spaced about 5.0 mm apart.

Comparative Analysis: The small size of the specimen makes comparative analysis of little value. Similar decorations were observed on flattened lips from Riggs Ware, Lisbon Ware, and ceramics of the Woodland Tradition.

Ceramic Discussion:

Many of the ceramics from this collection, most notably the rim sherds, appear to display a strong influence from the Plains Village Tradition. Vessels #1 and #8 appear to be upper portions of high S-shaped rim sherds similar to Fort Yates Incised Rim Ware. Similar sherds have been observed from Missouri River Trench sites assigned to the Extended and Terminal Middle Missouri variants of the Middle Missouri Tradition (Wood and Woolworth 1964; Wood 1962; Sperry 1968) and to the Scattered Village complex (Lovick and Ahler 1982). Ann Johnson has likened a similar rim sherd from the Ones collection, which is located approximately six miles from this site, to Fort Yates Ware (Floodman et al. 1985). Vessels #3 and #4 share many attributes with Riggs or Riggs-like Wares as manifested in sites assigned to the Extended and Terminal variants of the Middle Missouri Tradition (Wood and Woolworth 1964; Wood 1967; Sperry 1968) and to the Scattered Village Complex (Lovick and Ahler 1982).

Vessels 1, 3, 4, and 8 would probably fit well within Johnson's Group I pottery from the Curtis Ones collection, which she likens to the Middle Missouri Tradition, particularly the Extended Middle Missouri variant (Floodman et al. 1985:226-243). The four rims are also similar to sherds from sites assigned to the Scattered Village Complex, which in turn are similar to Riggs and Fort Yates Wares. These ceramics have higher frequencies of flattened lips, incised and trailed decorations on pottery lips and rims, and check-stamped body sherd treatment (Lovick and Ahler 1982:73). Vessel #6 displays parallel cord-marking on the neck portion which may represent a Woodland Tradition manifestation. Lisbon Ware, a Plains Village Tradition manifestation of the Stutsman Focus, is also characterized by thin, straight, vertical rims which are typically cord-marked (Wood 1962).

Vessel #2 combines tool impressions with pinched rim decorative techniques to form a beaded rim. This form does not appear to be common on the Northeastern Plains. A similar rim from the Schultz site was assigned to Lisbon Ware. Lovick and Ahler (1982:212) note the relatively high frequency of beaded rims within the Scattered Village Complex. The analysis of vessels 2, 6, and 9 is tenuous. The vessels which these rim sherds represent may be manifestations of the Plains Village and/or Woodland Traditions.

The fabric-impressed body sherds and conceivably the cord-marked body sherds probably represent a Woodland Tradition manifestation. The check-stamped, simple-stamped, and probably the smoothed body sherds appear to represent a Plains Village manifestation but may also represent the Mortlach aggregate.

The number and exact nature of the cultural components represented by this ceramic collection can not be determined at this time. A strong Plains Village Tradition influence is indicated, particularly from the Middle Missouri Trench. Influence is also suggested from Plains Village manifestations along the James and/or Sheyenne River. A Woodland Tradition influence, probably from manifestations in Manitoba and Saskatchewan, is also indicated.

32RV213

This collection consists of six undecorated body sherds and an apparent neck fragment. All sherds are tempered with moderate to heavy amounts of grit particles of crushed granite. These particles range in size from 0.5-1.5 mm and average approximately 1.0 mm. The body sherd thicknesses range from 3.5-7.3 mm with the average sherd thickness measuring 5.88 mm. The neck fragment measures approximately 6.2 mm in thickness at the rim base and tapers to 5.2 mm at the upper portion of the shoulder. Core textures of the sherds range from slightly blocky to blocky with dull, non-gritty surfaces. The sherds are relatively hard and compact, but two of the sherds are split horizontally. Exterior surface colors range from light yellowish brown (10YP6/4) to black (10YR2/0). Interior surface colors range from dark brown (10YR4/2) to black (10YR2/0), and all cores are black (10YR2/0). Four of the body sherds are smooth, and the other two have thin, parallel cord-marks. The shoulder portion of the neck sherd contains similar cord-marks oriented vertically. The lower rim portion and neck are smooth. The vessel represented by the neck sherd appears to have had a slightly flared rim and constricted neck. The shoulder may have been either rounded or flat.

Comparative Analysis: Assignment of small numbers of body sherds to a particular tradition is not possible. The cord-marked surface treatment suggests a manifestation of the Woodland Tradition. Representative sites of the Mortlach aggregate also contain cord-marked body sherds (Finnigan 1988; Joyes 1973; Schneider and Kinney 1978) as do particular ceramic wares of the Stutsman Focus, an expression of the Plains Village Tradition (Wheeler 1963), and wares assigned to the Initial Middle Missouri variant.

If it can be assumed that all of the ceramics, in addition to the projectile point (a Prairie Side-notched variety), represent a single component at the site, the possibilities of either Mortlach or Stutsman influences diminish due to the relatively late appearance of these manifestations, as presently understood. This site is tentatively assigned to the Late Woodland Tradition.

32RV223

This collection consists of one undecorated body sherd. The specimen is tempered with a moderate amount of grit consisting of particles of crushed granite. These particles range from 1.0-3.5 mm in size with an average of approximately 2.0 mm. The sherd has been smoothed and has a thickness of 6.6 mm. The core is blocky and laminated, and the surfaces are relatively hard. The exterior surface is reddish yellow (7.5YR6/6) and the interior surface is gray (10YR6/1). The core is dark gray (10YR6/1).

Comparative Analysis: The sherd is not considered to be culturally diagnostic.

32RV229

Body Sherds:

Six undecorated body sherds were recovered. The sherds are tempered with moderate to heavy amounts of crushed granite grit particles. The particles range in size from 0.5-3.5 mm with an average of 2.0 mm. The sherds range from slightly blocky to blocky in texture and with the exception of one sherd, all are relatively hard and compact. One sherd is friable and laminated, which has caused a portion of the sherd to split in horizontal cleavage. This sherd is also considerably thicker than the others. Two additional sherds were also split in horizontal cleavage. Sherd thicknesses range from 4.1-9.0 mm with an average of 5.6 mm. All sherds are smoothed. Exterior surface colors range from light yellowish brown (10YR6/4) to dark gray (10YR4/1). The interior surfaces and cores are generally darker, with most being dark gray (10YR4/1). The interior of one sherd is highly burnished, and another contains carbonized material along its interior.

Comparative Analysis: None of the sherds are considered to be culturally diagnostic.

Decorated Body Sherds:

Two body sherds are decorated with incised lines. One sherd contains at least three rows of parallel circular punctates. These sherds are too fragmented to allow determination of the decorative motif on any of them. One of the incised sherds has blocked areas with diagonal lines. The incising on both the incised sherds was executed with a sharp pointed object. The punctated sherd was decorated by impressing the wet clay with a rounded or blunted object. The slight curvature of each decorated sherd probably indicates that all are shoulder fragments.

Comparative Analysis: Trailed and incised linear decorations are a common form of shoulder decoration on Plains Village pottery (Wood 1962). Linear incising also appears to be common on some named Late Woodland manifestations, such as the Devils Lake-Sourisford Complex (Syms 1979), but rare on Blackduck and Sandy Lake wares (Anfinson 1979). Linear incising or trailing is not known as a shoulder decoration on pottery assigned to Mortlach aggregate wares (Johnson 1977; Schneider and Kinney 1978; Joyes 1973; Finnigan 1988). Punctated shoulders appear to be uncommon on Plains Village Tradition pottery (Wood 1962). A punctated shoulder sherd was observed in the collection from the Schultz site, a Plains Village manifestation from the Sheyenne River near Lisbon, North Dakota. A sherd containing numerous punctates in association with dentate-stamping was found in the Mortlach component at the Evans site (Schneider and Kinney 1978). Duck Lake Punctate ware, a ceramic manifestation of the Late Woodland Tradition in southern Manitoba, contains similar decorated shoulder sherds (Syms 1980).

Rim Sherds:

Vessel #1

Temper: The sherd contains moderate to heavy amounts of crushed gra-

nite grit. Particle sizes range from 0.5-2.0 mm.

Texture: The core is slightly blocky. The interior and exterior surfaces are dull and slightly rough, which is caused by grit particles extruding into the surfaces.

Color: The interior and exterior surfaces are predominantly dark grayish brown (10YR4/2), and the core is black (7.5YR2/0).

Surface Treatment: The interior and exterior surfaces are smoothed but are treated with horizontal striations probably caused by scoring.

Thickness: The lip is 7.3 mm thick. The rim-neck juncture is 7.0 mm thick.

Lip Form: The lip is flattened.

Rim Form: The rim has an incipient S-shape.

Rim Height: 38.9 mm.

Decorative Treatment: Decoration is limited to the exterior lip-rim juncture and the lip top. The lip was pinched by placing the thumb at an oblique angle with the exterior lip-rim juncture and applying downward pressure to the lip top with the first finger. The resulting decoration consists of oblique thumb nail impressions at the lip-rim juncture and broad, shallow depressions on the lip top.

Comparative Analysis: This specimen is too indistinct in attributes to assign it to a specific tradition. The incipient S-shaped rim form is found in small frequencies within the Plains Village Tradition, the Mortlach aggregate and the Late Woodland Tradition (Syms 1980).

Thumbnail impressing on the exterior lip-rim juncture is reported for Riggs ware (Wood and Woolworth 1964; Thiessen 1975), Lisbon ware (Wood 1962), and from ceramics assigned to the Mortlach aggregate (Johnson 1977).

Vessel #2

Temper: Same as vessel #1.

Texture: Same as vessel #1.

Color: The exterior surface is predominantly yellow (10YR7/6). The interior surface is pale brown (10YR6/3). The core is dark gray (10YR4/0).

Surface Treatment: The interior and exterior surfaces are smoothed.

Thickness: Lip = 7.2 mm. Rim = 6.5 mm.

Lip Form: The lip is flattened.

Rim Form: Possibly incipient S-shaped.

Decorative Treatment: Decoration is limited to the existing lip-rim juncture and consists of incisions produced by a V-shaped tool.

Comparative Analysis: This specimen is similar to vessel #1 and shares attributes with ceramics assigned to both the Plains Village Tradition and the Mortlach aggregate.

Vessel #3

Temper: The sherds are tempered with heavy amounts of crushed granite grit. Particle sizes range from 1.0-3.5 mm in size with many exceeding 2.0 mm.

Texture: The core is very blocky. The core is also laminated and friable, with a tendency to split in horizontal cleavage. Both the interior and exterior surfaces are slightly burnished.

Color: The exterior surface is mottled light yellowish brown (10YR6/4) and very dark gray (10YR3/1). The core is very dark gray (7.5YR3/1).

Surface Treatment: Both surfaces are smoothed. The exterior surface, however, contains a series of horizontal striations which are considered to be caused by scoring.

Thickness: Lip = 6.7 mm. Mid-rim and rim-neck juncture are 6.9 mm thick.

Lip Form: The lip is flattened.

Rim Form: The rim is straight and appears to have been nearly vertical.

Rim Height: 27.1 mm.

Decorative Treatment: Decoration consists of a horizontal row of small, shallow, circular punctates located at the exterior lip-rim juncture. The punctates were executed by impressing the moist clay with a round-tipped object. These punctates measure approximately 2.0 mm in diameter and are about 0.5 mm deep.

Comparative Analysis: Straight rims with flattened lips are common in ceramics from sites assigned to the Mortlach aggregate and the Late Woodland Tradition. This rim form is also found less frequently in the Plains Village Tradition, however. Punctates at the exterior lip-rim juncture are found in Riggs ware (Thiessen 1975; Sperry 1968) and Lisbon ware (Wood 1962), both expressions of the Plains Village Tradition. Punctates are also common to sites assigned to the Mortlach aggregate (Schneider and Kinney 1978) and in Duck Bay Punctate ware, a manifestation of the Late Woodland Tradition.

Vessel #4

Temper: Sherd contains moderate amounts of crushed granite grit. Particles range from 0.5-1.0 mm in size.

Texture: The sherd texture is slightly blocky. Both surfaces are dull and moderately rough due to occasional grit particles extruding onto the surfaces.

Color: The exterior surface is brown (10YR5/3). The lip, interior surface, and core are black (7.5YR2/0).

Surface Treatment: All surfaces are smoothed.

Thickness: Lip = 7.5 mm. Rim = 5.8 mm.

Lip Form: The lip is rounded.

Rim Form: Unknown.

Decorative Treatment: This specimen is fragmented and consists of the lip and less than 10 mm of the rim. The existing decoration consists of a horizontal row of shallow punctates at the exterior lip-rim juncture with at least one horizontal row of similar punctates on the exterior rim, immediately beneath or slightly off-set from those at the lip-rim juncture. The punctates are ovoid shaped and measure approximately 4.0 mm in length, 2.0 mm in width, 1.5 mm in depth, and are spaced 3.0-4.0 mm apart. These punctates were executed by impressing the moist clay with the edge or rounded end of an object such as a stick.

Comparative Analysis: This remnant sherd is similar to two sherds from the Souris River Basin in southwest Manitoba which were likened to Duck Bay Punctate ware. The specimen differs from these two sherds and from Late Woodland pottery in general, in that it has a rounded lip. The sherd also differs from Riggs Punctate Rim ware in having punctates on the rim proper, below the lip-rim juncture (Calabrese 1972). Punctates on the upper rim portion below the lip-rim juncture appear to be present on some Mortlach pottery, but this is rare (Johnson 1977).

Vessel #5

Temper: The sherd contains a moderate amount of finely crushed granite grit. The particle sizes range from 0.5-1.0 mm.

Texture: The core is finely textured and shows little blockiness. Both the interior and exterior surfaces are finely textured and burnished.

Color: The interior and exterior surfaces are mottled, pale brown (10YR6/3) and black (7.5YR2/0). The core is also black (7.5YR2/0).

Surface Treatment: All surfaces are smoothed.

Thickness: Lip = 7.0 mm. Mid-rim = 4.4 mm. Neck = 4.5 mm.

Lip Form: The lip is flattened.

Rim Form: The rim expands in thickness at the lip and is slightly flared.

Rim Height: 19.1 mm.

Decorative Treatment: The decoration is limited to the lip top and consists of a series of incised lines placed perpendicular to the vessel orifice. These incised lines are approximately 1.5 mm in width and extend the entire width of the lip but do not extend onto either the interior or exterior surfaces. The lines were produced by incising the lip with a sharp pointed object.

Comparative Analysis: The expanded rim form with broad flattened lip appears to be more characteristic of Late Woodland Tradition ceramics and some pottery of the Mortlach aggregate that it is of Plains Village ceramics in general. The fine textured core of this sherd, combined with sparse amounts of fine grit temper, is also atypical of Plains Village Tradition pottery. In terms of named ceramic wares reported for the general area, this specimen most resembles rims assigned to Mortlach Flat Rim ware (Joyes 1973:68-69; Schneider and Kinney 1978:21; Finnigan 1988:34-35).

Ceramic Discussion:

The ceramics included in this collection are generally nondistinct in attributes which might enable their assignment to established ceramic traditions. At least three sherds, the rims designated vessels 4 and 5 and the punctated body sherd, display attributes which are atypical of the Plains Village Tradition wares, at least for Middle Missouri variant wares. Similarities do exist between these sherds and those associated with Mortlach aggregate sites and also with Duck Bay Punctate ware, a Late Woodland Tradition manifestation. A preference for smoothed bodied vessels is common at sites assigned to the Mortlach aggregate, but is also present in some Woodland tradition wares (e.g., Anfinson 1979; Syms 1979). This collection is too small to enable formal assignment to a particular cultural tradition at this time. It is possible that this collection may represent an unnamed cultural manifestation.

32RV230

Body Sherds:

This collection consists of nine undecorated body sherds and a shoulder sherd which contains the lower portion of the neck. All the sherds are tempered with moderate to heavy amounts of crushed granite grit particles. These grit particles range from 0.5-2.0 mm in size and average approximately 1.0 mm. The body sherd thicknesses range from 3.5-6.1 mm and average 5.0 mm. The shoulder fragment measures 5.4 mm at the shoulder and 3.0 mm at the neck. Core textures range from slightly blocky to very blocky with the majority of the sherds in the slightly blocky category. The sherds are relatively hard and compact, although three are split by horizontal cleavage. Exterior surface colors range from very pale brown (10YR7/3) to black (7.5YR2/0), and the interior surfaces and cores are very dark gray (7.5YR3/0). Five of the nine sherds (55.6%) are smoothed and exhibit varying degrees of burnishing. Three sherds are check-stamped (33.3%), and one body sherd

is simple-stamped (11.1%). The shoulder sherd is primarily check-stamped, but the neck portion of the sherd is smoothed. There appears to be no correlation between surface treatment and sherd thickness, temper, or texture attributes. Five of the body sherds and the shoulder fragment contain burned carbonized substances on the interior surfaces which may be indicative of their use in cooking.

Comparative Analysis: Smoothing, check-stamping, and simple-stamping are all present in differing frequencies in various complexes of the Plains Village Tradition (Lehmer 1971; Gregg and Davidson 1985; Neuman 1963; Wheeler 1963). They also frequently appear in the Mortlach aggregate (Schneider and Kinney 1978) and in Late Prehistoric manifestations in southern Canada such as the Cluny Complex (Forbis 1977).

Rim Sherds:

Vessel #1

Temper: The temper consists of moderate to sparse amounts of grit consisting of finely crushed granite. Particle sizes range from 0.5-1.0 mm.

Texture: The core is slightly blocky, and the exterior surface is slightly burnished. The interior surface contains a thick layer of carbonized material, indicating that the vessel probably was utilized for cooking.

Color: The exterior surface is predominantly grayish brown (10YR5/2), and the interior surface and core are black (7.5YR2/0).

Surface Treatment: The exterior surface has had check-stamping applied to an area immediately below the exterior lip-rim juncture. These check-stamp marks were produced by impressing the damp clay with a paddle carved with linear grooves oriented perpendicularly (Syms 1980:40). The check-stamp marks have been partially obliterated by smoothing.

Thickness: The lip is uniformly thick at 8.2 mm, and the rim measures approximately 5.8 mm.

Lip Form: The lip is flat with a slight overhang at the interior lip-rim juncture.

Rim Form: The rim appears to be straight and expands in thickness at the lip.

Decorative Treatment: Decorative treatment is absent.

Comparative Analysis: This specimen shares a number of characteristics with sherds from sites assigned to the Mortlach aggregate. Flat lipped rim sherds with straight and expanding profiles and check-stamped surface treatments help define Mortlach wares and are found at the Green site (Finnigan 1988:34-35), the Evans site (Schneider and Kinney 1978:17), and at the Shippee Canyon site (Joyes 1973:66-67).

Vessel #2

Temper: The temper consists of moderate amounts of finely crushed granite grit. Grit particle sizes range from 0.5-1.0 mm.

Texture: The core is slightly blocky, while the exterior surface is lightly burnished. The interior surface is dull and slightly rough due to grit particles which extrude onto the surface.

Color: The exterior and interior surfaces are very pale brown (10YR7/3). The core is dark gray (7.5YR4/0).

Surface Treatment: The exterior surface exhibits fine simple-stamped impressions, which were terminated by smoothing approximately 15 mm below the exterior lip-rim juncture. The interior is smoothed.

Thickness: The lip measures an uniform 4.6 mm in thickness, while the rim is 3.7 mm thick and tapers to 2.4 mm at the lowest portion of the body.

Lip Form: The lip is rounded.

Rim Form: The rim is excurvate.

Rim Height: 6.4 mm.

Decorative Treatment: The specimen contains a row of dentate-stamp marks parallel with the vessel orifice and located approximately 6.0 mm below the exterior lip-rim juncture. This row of dentate stamping was probably continuous around the entire rim circumference. Individual dentate stamp marks are rectangular shaped and measure approximately 2.0 mm in length by 0.5 mm in width. This row is intersected at a 45 degree angle by a series of similar parallel dentate stamps. These stamps were probably produced with the edge of a comb-like object and consequently are referred to in the literature as comb or comb-dentate stamps (Anfinson 1979; Snortland-Coles 1988).

Vessel Form: It can be speculated that the vessel represented by this sherd was globular and may have resembled a squat, wide-mouthed jar.

Comparative Analysis: This sherd combines dentate-stamping, a decorative element generally associated with the Woodland Tradition, and simple-stamping, a surface treatment very common with the Plains Village Tradition on the Northern Plains. Comb or comb-dentate stamping is frequently used on St. Croix stamped ware, a manifestation of the Middle and Late Woodland stages (Anfinson 1979:75). This decorative treatment is also known from Laurel ware of the Middle Woodland tradition, Laurel ware (Anfinson 1979:121) and occasionally on Blackduck ware (Anfinson 1979:26), an expression of the Late Woodland tradition. Simple-stamping has not been reported for these wares (Anfinson 1979). Ceramics from sites assigned to the Mortlach aggregate often combine ceramic attributes from these two traditions (Gregg and Davidson 1985:135). A very similar dentate-stamp motif is noted from sherds of the Shippee Canyon site (Joyes 1973:70-71), the

Dune Buggy site (Johnson 1977:42) and the Evans site (Schneider and Kinney 1978:25). Simple-stamping of ceramics is also present at the Shippee Canyon and Evans sites.

Ceramic Discussion:

The ceramics from this collection share characteristics of rim form, surface treatment, and decorative techniques with pottery assigned to the Mortlach aggregate.

32RV232

One small, smoothed body sherd was observed at the site, but was not collected.

Comparative Analysis: The sherd is not considered to be culturally diagnostic.

32RV236

The ceramic collection consists of an undecorated body sherd. The specimen is tempered with a sparse amount of fine sand particles. The particles range from 0.25-1.0 mm in size, with an average particle size of approximately 0.5 mm. The exterior surface is reddish yellow (10YR6/6). The interior surface is light brownish gray (10YR6/2) and the core is black (7.5YR2/0). The core and surfaces are dull but fine textured. The surface treatment on the exterior surface has been obliterated by smoothing.

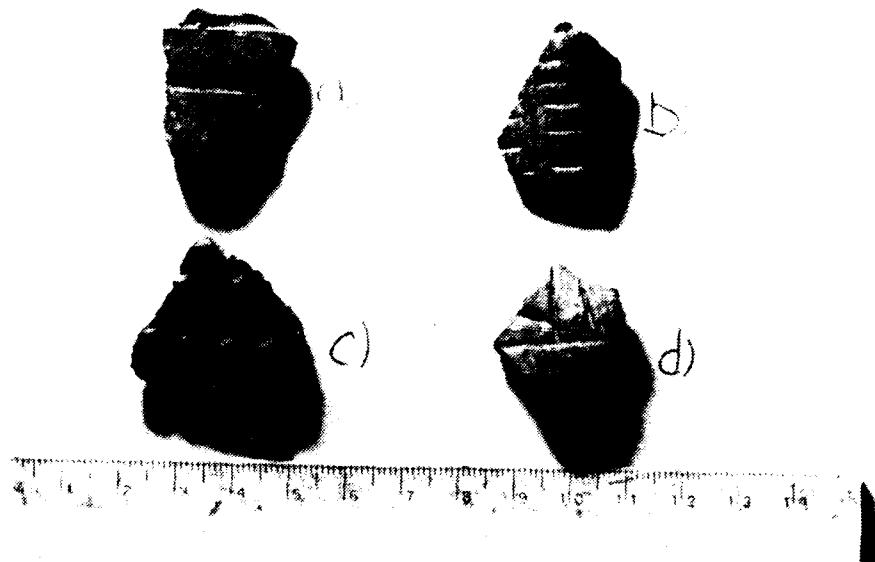
Comparative Analysis: This sherd is different from all others collected from the project area as it is sand-tempered. Sand-tempering is not characteristic of the Plains Village Tradition and appears more commonly in the Plains Woodland Tradition (Schneider and Kinney 1978:16).

Overall Ceramic Summary

The ceramics collected from sites within the present survey area display a wide variety of attributes, particularly in surface treatments. There is less variation in the decorative treatments and rim forms, however. The variety of the ceramic attributes in this collection appears to represent the exploitation of this area by various cultural groups or at least the influence of these groups on the people who inhabited this area through trade or the exchange of ideas. The hybridization of some of the ceramic sherd attributes appears to represent influence by more than one group on the people who inhabited a specific locus (i.e., the Mortlach aggregate and Plains Village pattern complexes).

None of the culturally diagnostic sherds appear to pre-date the Late Prehistoric period. This assessment may not be accurate, however, because a very limited sample size was collected. The ceramic collection indicates strong influences from the Plains Village pattern, both from complexes in the Middle Missouri sub-area and from those of the James and/or Sheyenne River valleys of eastern North Dakota. A

Figure 20



32RV212; 32RV229 - Decorated Body Sherds -
a) 32RV212; b) 32RV212; c) 32RV229; d) 32RV229



32RV212; 32RV206 - Undecorated Body Sherds -
a) check-stamped - 32RV212; b) linear check-stamped - 32RV206;
c) twining - 32RV212; d) spang - 32RV212

Figure 21



32RV229 - Rim Sherd - Exterior to the Left -
a) vessel 1; b) vessel 2; c) vessel 3; d) vessel 4; e) vessel 5



32RV230 - Rim Sherds - Exterior to the Left -
a) vessel 1; b) vessel 2; c) shoulder sherd

Figure 22



32RV212 - Rim Sherds - Exterior to the Left -
a) vessel 1; b) vessel 2; c) vessel 3; d) vessel 4



32RV212 - Rim Sherd - Exterior to the Left -
a) vessel 5; b) vessel 6; c) vessel 7; d) vessel 8; e) vessel 9

strong expression of the Mortlach aggregate is also suggested in at least one of the sites. Late Woodland manifestations are also probably reflected in this collection, but formal assignment to specific Woodland complexes is not possible at present. These assessments are similar to findings presented for other portions of the Souris River valley (Floodman et al. 1985; Floodman and Friedman 1986; Fox 1982).

Based on culturally and temporally diagnostic ceramic sherds, the temporal range of pottery sites located within the project area is tentatively placed between A.D. 800-1750. This range begins with the initiation of the Late Prehistoric period, as defined herein, and ends with the termination date of the Mortlach aggregate. This temporal range takes into account the possible unnamed Late Woodland period complex which is represented by the ceramics located at site 32RV213. Subsequent archaeological investigation in this area may help to further define and expand the temporal range significantly.

SUMMARY OF PREHISTORIC CULTURAL MATERIALS

The culturally and temporally diagnostic artifacts associated with the archaeological sites recently recorded within this portion of the Souris River valley appear to represent a large number of cultural groups who occupied the area over a relatively short period of time. Some of these groups may have co-habited and interacted within the Upper Souris River Basin.

The oldest occupations recorded from this portion of the Souris River valley during the present survey seem to date from the Late Middle Prehistoric period. The Late Archaic tradition is represented by materials recovered from site 32RV202, particularly by an apparent Pelican Lake projectile point. The Plains Middle Woodland tradition is also represented at this site and at the nearby site 32RV201 by two Besant projectile points. The Avonlea complex, another expression of the Plains Woodland tradition, is represented at site 32RV208 by a Carmichael Wide-Eared variety Avonlea projectile point. No ceramics were recovered from the surfaces of these sites.

The Late Prehistoric period is well represented within the project area by a several small triangular projectile points and by pottery sherds representing numerous ceramic wares. Perhaps the earliest expression of the Late Prehistoric period is reflected by the Prairie Side-notched projectile point and the relatively thick cord-marked ceramic sherds recovered from site 32RV213. Plains Village pattern ceramics similar to Extended Middle Missouri variant wares were collected from site 32RV212. Ceramics reminiscent of the Scattered Village complex were also recovered from this site. Ceramics with possible affiliations to the relatively recent Mortlach aggregate and Stutsman focus were also collected from sites in the project area.

Based on the analysis of the culturally diagnostic artifacts collected during the present inventory, a tentative temporal range of 1500 B.C. to A.D. 1780 can be suggested for this portion of the Upper Souris River valley. This temporal range begins with the initial dates established for the Pelican Lake complex and ends with the recognized termination of the Mortlach aggregate. The temporal range of this area might be greatly expanded if further archeological investigations are conducted, particularly if subsurface testing of the sites is performed. All artifacts collected during this survey were found in disturbed surface manifestations of the sites. Subsurface investigations of these sites would probably result in the adjustment of the temporal span of this portion of the Upper Souris River Valley. In addition, the Emmel collection, reportedly accumulated from terraces adjacent to the project area, contains numerous artifacts from the Middle Archaic period and some which may date to the Paleo-Indian tradition.

Two buried sites may have special potential to yield pertinent undisturbed data. Sites 32RV231 and 32RV209 were both located in cutbank exposures along the river. The depth of the cultural horizons in each range from 1-2 m. Both sites appear to have multiple features which will likely yield material significant to the prehistory of this portion of the Upper Souris River valley.

All the prehistoric sites recorded during the current survey appear to represent short term occupation sites. Most of these sites appear to have been intermittently occupied. Evidence at site 32RV212 suggests it may have been occupied by two groups. This site may have functioned as a seasonal base camp for one or more of these groups of people during a given period of time, or it may represent the interaction of one or more groups as they co-habited and perhaps interacted in this portion of the Upper Souris River valley. Further investigations at this site are needed to address these hypotheses.

Bison procurement was much in evidence at all the sites except for site 32RV207. The large amounts of faunal remains appears to indicate that extensive processing of bison and other animals was occurring in this portion of the Upper Souris River valley. Further investigations at these sites could help to better establish the subsistence base of the aboriginal people of this area, in reference to particular cultural and temporal parameters. Investigations into the Minimum Number of Individuals of particular species at a site and their frequency of occurrence could help to suggest the range of variability which occurred in the diets of the cultural groups.

Site 32RV207 represents an early-stage lithic reduction area within this portion of the river valley. All the other sites which have lithic materials demonstrate that late stage reduction activities were the principal lithic manufacture activities at those locales. These are only preliminary findings, however, and further work is needed at each site to accurately determine which stages of lithic reduction manufacture were most prevalent at each site. Further work might also address the questions of choice of raw lithic materials and the importance of trade and/or travel in the procurement of the materials.

The location of sites at particular areas along the river indicates that patterning in settlement occurred over time. Further investigations might result in identification of settlement site preferences by cultural groups, including factors of seasonality in settlement and changes in settlement locations over time due to fluctuations of natural conditions such as levels of normal river flow and flooding. The present report and other reports of cultural resource investigations in the United States and Canada contain much information about the location of sites in the Souris River Valley. Testing or excavation of sites is necessary to provide a cultural chronology upon which a settlement model can be generated. Expansion of the area of investigation beyond the present study area may be appropriate, particularly to include the terraces which have been reported to contain Middle Archaic and possibly Paleo-Indian manifestations.

GEOARCHAEOLOGICAL SUMMARY

Introduction

This section addresses the geoarchaeological potential of the three grouped terrains associated with a segment of the Souris River floodplain in Renville County, North Dakota. Specific consideration is given to (1) the potential of individual landforms within the terrain groups to contain cultural material, (2) the age(s) of the cultural horizons, (3) the paleoenvironmental conditions which may have influenced human occupation/artifact preservation and, (4) site disturbance due to geologic and pedologic processes. These assessments are developed from an interpretation of the results obtained during a 1988 field reconnaissance.

The results of the reconnaissance are presented together with the interpretation of their geoarchaeological significance, suggestions for future research and cited references.

Procedures

Methodologies employed in this reconnaissance are outlined in the research proposal presented to the Corps of Engineers July 22, 1988. These methods follow a deductive approach developed by McFaul (1987, 1988, in review) for North and South Dakota. The approach consists of four investigative processes:

1. Grouping of similar soil-sediment-landform relationships.
2. Describing and profiling of representative soil-sediment columns.
3. Interpreting the soil-sediment record and its paleoenvironmental history and
4. Assessing the geoarchaeological potential of the soil-sediment-landform groups.

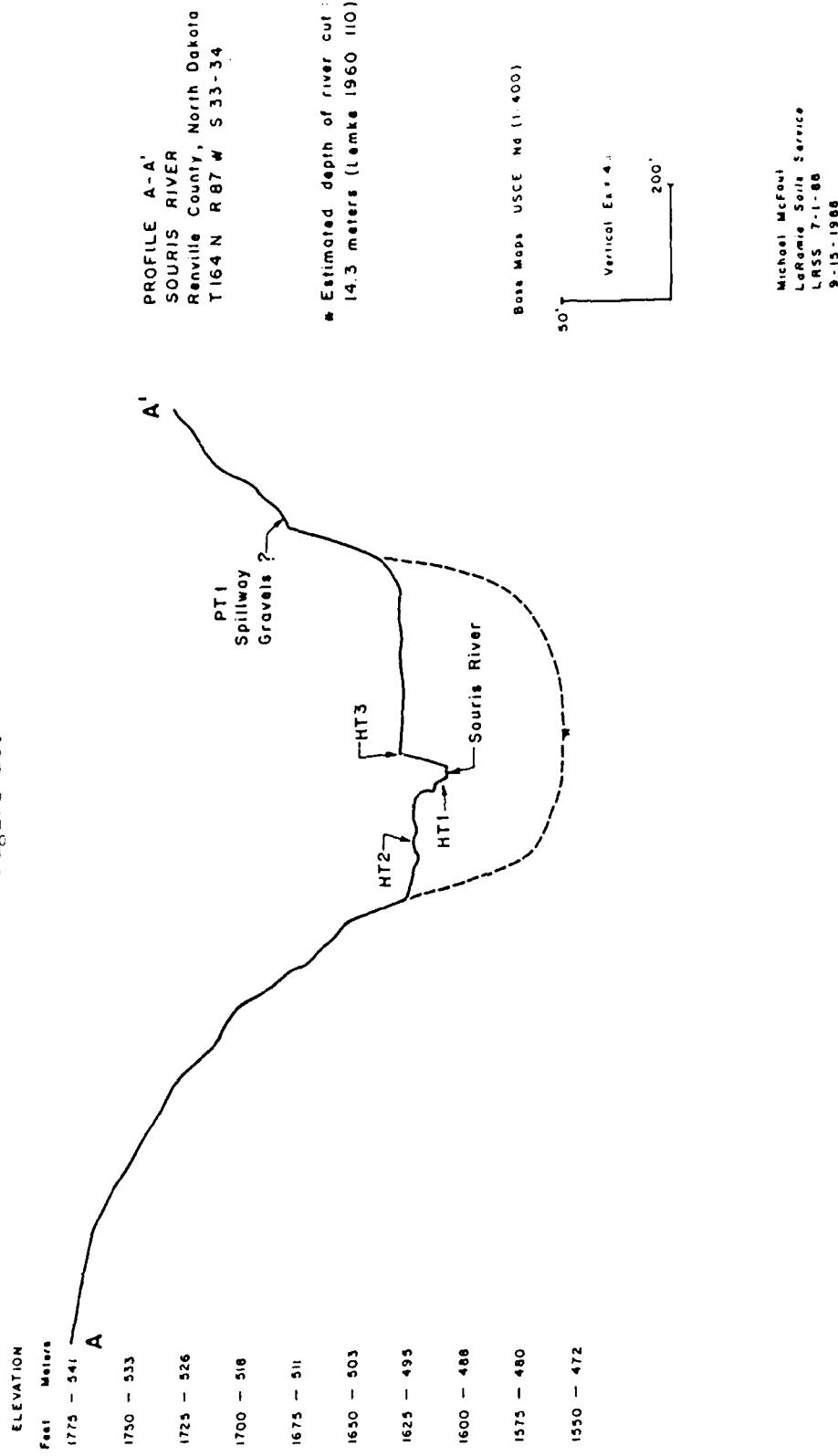
Results

Vehicular and pedestrian traverses of the study area and its environmental areas reveal three major soil-sediment-landform groups:

1. a glaciated till plain at approximately 548-533 m (1,800-1,750 ft) elevation,
2. the 2-3 km (1.2-1.9 mi) wide walls of the Souris River Valley,
3. the floodplain of the ephemeral, approximately 490-487 m (1,610ft north-1,600 ft south) elevation Souris River.

The Souris River Valley (Figure 18) is cut into a low relief Wisconsin glacial till plain (Lemke 1960, Clayton et al. 1980). Segments of the till plain, like those near Stafford School No. 2 (USGS 1949), are partially mantled with varying thickness of ice-marginal outwash-channel deposits (Lemke 1960) and eolian reworked outwash sands (Thiele et al. 1977). These three sediment units can be delineated by the soils developed upon them (Table 7). Soils on the till are included in the Barnes Series (Thiel et al. 1977) which is a "moderately developed" (see Birkeland 1984:24) soil evidencing an accumulation of pedogenic clays (Bt horizon) and olive brown, 2.5Y colored carbonate rich Bk horizons. The "weakly developed" Embden Series is located on the outwash-channel gravels and sands. This soil lacks pedogenic clay accumulations in the B horizon and has less-blue, 10YR hues in its yellowish-brown and grayish-brown sandy parent materials. The eolian reworked sands are identified by the "weakly developed" Swenoda soil which buries a stripped paleosol developed on outwash-channel deposits or till.

Figure 23.



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LASS 7-1-86
9-15-1986

Table 7. Souris River Soil-Sediment-Landform Associations
 *After Thiele et al., 1977

<u>Landform</u>	<u>Soil Series*</u>	<u>Parent Material</u>	<u>Characteristics</u>
till plain	Barnes	glacial till	"moderately developed," Bt, olive brown (2.5Y) Bk.
till plain	Embden	outwash-channel gravel and sands	"weakly developed", Bw, yellowish-brown over grayish-brown 10YR sands.
till plain	Swenoda	Eolian reworked outwash	"weakly developed", Bw, grayish-brown 10YR eolian sands over stripped soil.

valley walls	Barnes	glacial till	"moderately developed", Bt, olive brown (2.5Y) Bk associated with level terrains along valley walls.
valley walls	Zahl	glacial till	"weakly developed", Bk, grayish-brown 2.5Y, steep slopes.
valley walls	Max	glacial till	"weakly developed", Bw and Bk, grayish-brown 2.5Y, steep slopes.
valley walls	Renshaw (PT2)	glacial outwash	"weakly developed", Bw, buried 2Bk developed on sand.
valley walls	Sicoux (PT2)	glacial outwash	"weakly developed", thin, lacks Bw, 2Bk2 is white (10YR8/2)
valley walls	Swenoda (PT2)	eolian reworked outwash sand	"weakly developed", Bw, yellowish-brown over grayish-brown 10YR sands.
valley walls	Embden (PT2)	eolian reworked outwash sand	"weakly developed", Bw, grayish-brown 10YR eolian sands over stripped soil.
valley walls	Svea (PT1)	alluvium spillway bars"?	"weakly developed", loamy stratified alluvium with bands of pebbles (see Moose Mountain outburst bar, Lord and Kehew 1987; 668)
valley walls	Swenoda (PT1)	eolian reworked outwash (may mantle spillway gravels)	"weakly developed", Bw, yellowish-brown over grayish-brown 10YR sands.

Table 7. Souris River Soil-Sediment-Landform Associations (Continued).
 *After Thiele et al., 1977

<u>Landform</u>	<u>Soil Series*</u>	<u>Parent Material</u>	<u>Characteristics</u>
valley walls (PT1)	Sioux	glacial outwash mantling older outwash? (see Boettger 1986:93)	"weakly developed", thin, "spillway gravels" lacks Bw, 2Bk2 is white (10YR8/2)
floodplain (HT3)	LaDelle	alluvium	"weakly developed", cumulic, with buried A horizons, silty clay loam over sands.
floodplain (HT2 and HT1)	Velva	alluvium	"weakly developed", fluventic, sandy
floodplain (HT2)	Ludden	alluvium	"weakly developed" Bk, abandoned clay rich channels.

The walls of the Souris River Valley have an interrupted grade of approximately 28-40 percent. The majority of the valley walls are mantled with glacial till and landslide events (Lemke 1960) which have acted to make segments of the valley less steep. Depending upon the percent grade, the Zahl-Max or Barnes soils are developed on the till (Thiele et al. 1977). The "moderately developed" Barnes Series is on the nearly level and rolling terrains. The Zahl-Max Association occurs on the steeper valley walls and topographic breaks. Both the Max and Zahl soils are "weakly developed" and the Zahl lacks a soil B horizon.

Segments of the valley profile (Figure 24) are interrupted by two elevations of glaciofluvial terrace remnants. The upper terrace is approximately 23 m (75 ft) above the Souris River floodplain, and the lower terrace varies in elevation from 15 to <1 m (50- <3 ft) above the floodplain.

The upper terrace or Pleistocene Terrace #2 (PT2) contains bedded, glaciofluvial channel sands and a matrix supported gravel bar mantled by ground moraine (Figure 25). The glaciofluvial cobbles and sands have a "rusty" (7.5YR5/4) or weathered (Karlstrom 1987, 1988) appearance and a paleosol having a white (10YR8/1) Stage II+ accumulation of calcium carbonate (Gile et al. 1966; Machette 1985). A wedge-like form of carbonate rich sediment descends from the paleosol (2Bkb horizon) into the weathered gravels below. The lack of the soil A horizon above the buried Bk horizon indicates the paleosol has been stripped and that it is unconformably overlain by soil 1 (PT2 Soil Description). The ground moraine sediments burying the paleosol are poorly sorted and carbonate rinds lacking a preferred orientation appear only on one side of the larger morainal clasts. A "weakly developed" soil is present on the morainal sediments and it is characterized by a structural (Bw) horizon.

Figure 14.

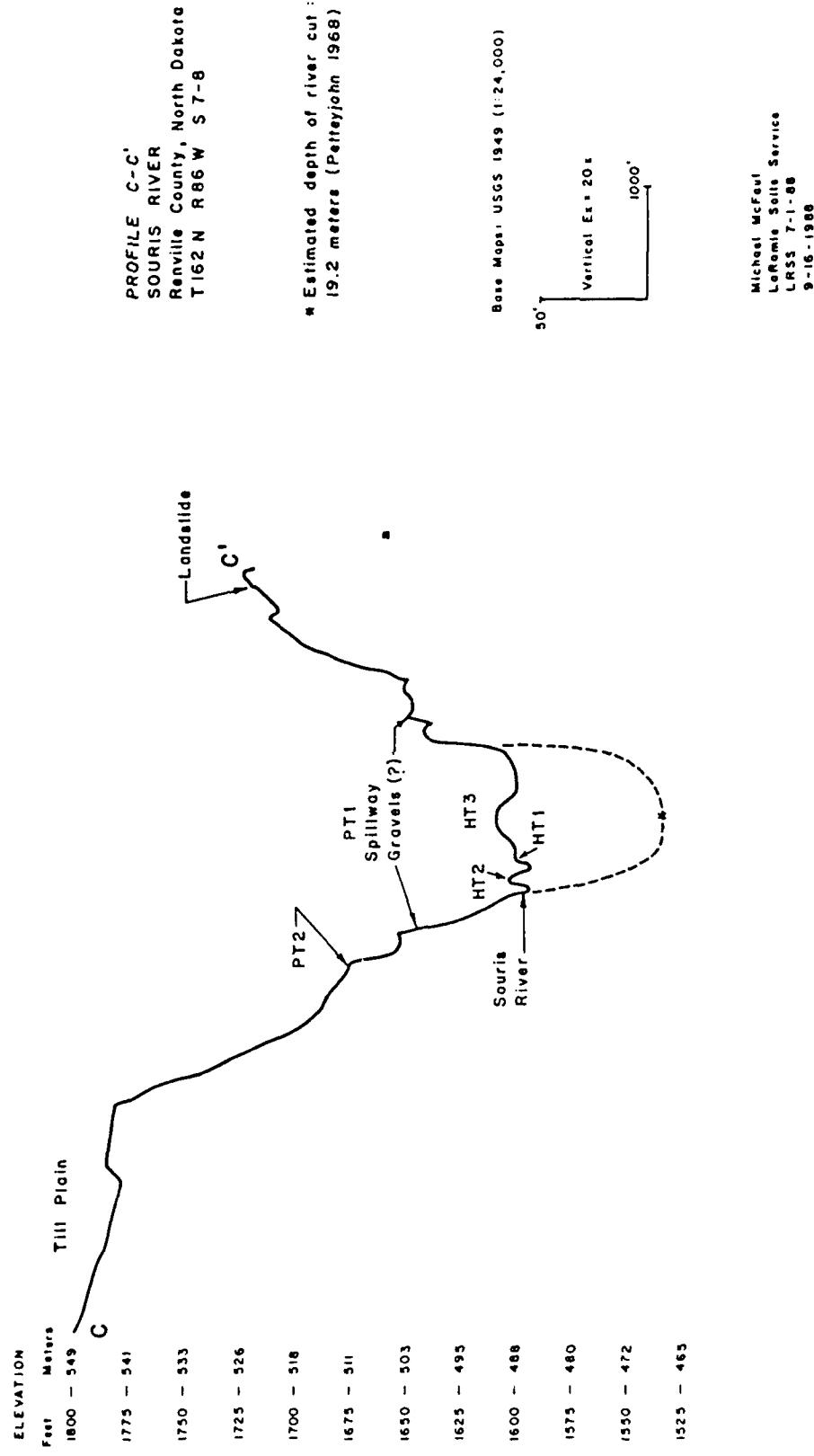


Figure 25.

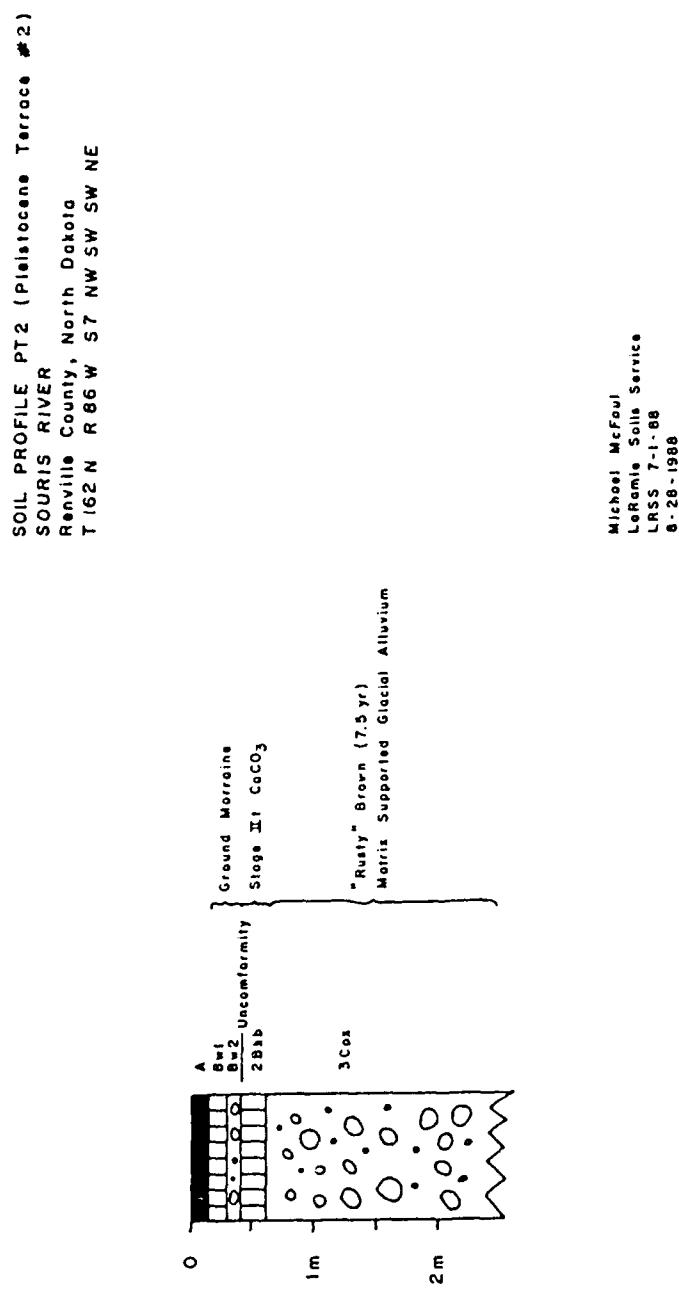


Table 8. PT2 Soil Description
T162N R86W S7 NW SW SW NE

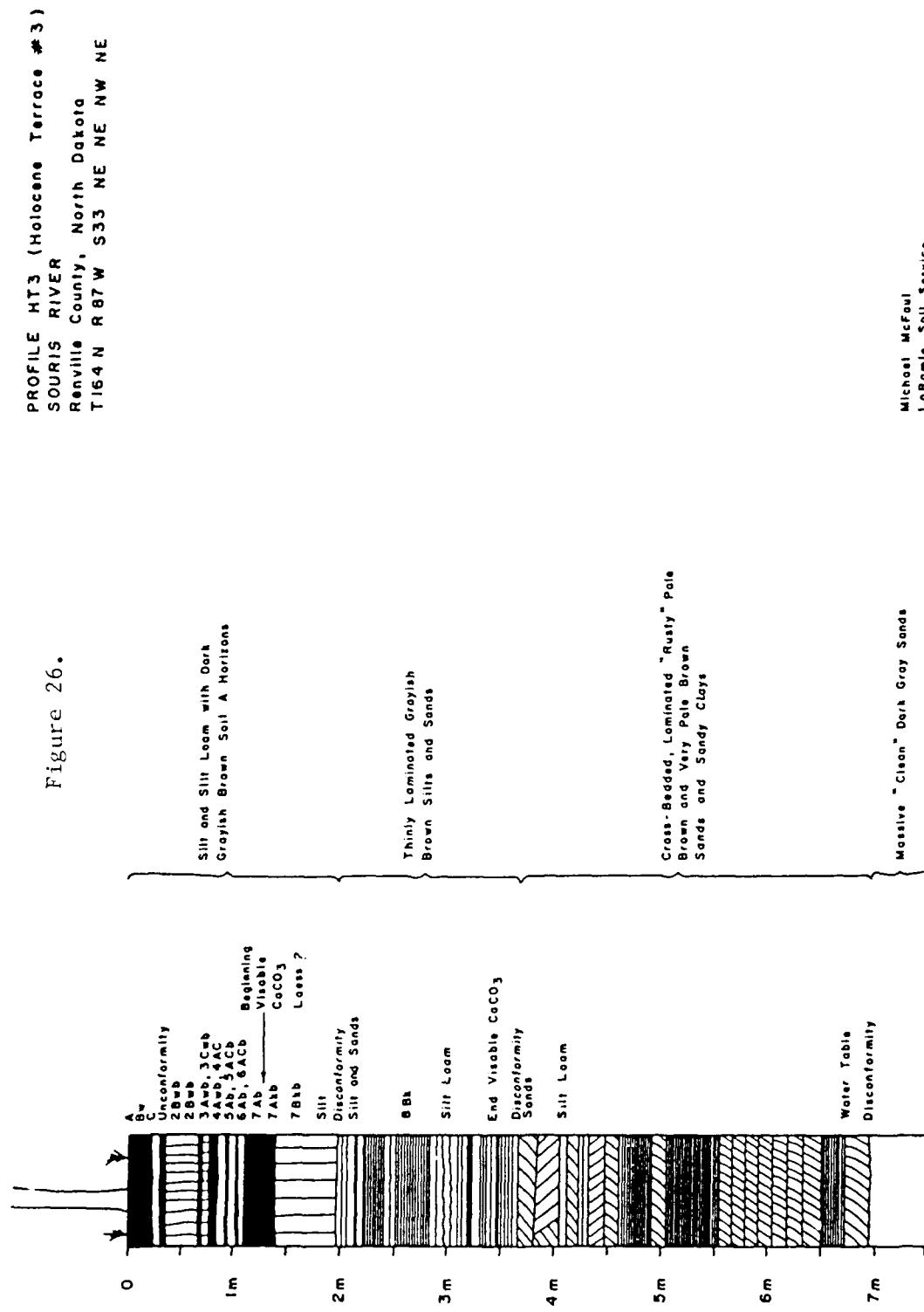
<u>Depth (cm)</u>	<u>Horizon</u>	<u>Description</u>
0-14	A	Very dark grayish brown (10YR3/2d=dry) sandy loam (superb tilth), massive (possibly machine compacted), non effervescent.
14-28	Bw1	Dark grayish brown (10YR4/2d) pebble sandy clay loam, weak coarse prismatic, non effervescent.
28-37	Bw2	Dark grayish brown (10YR4/2d) poorly sorted very stony sandy loam clasts <1 cm to >17 cm diameter, non effervescent some clasts have one side coated with CaCO ₃ , there is no preferred orientation for the coatings, ground moraine.
Unconformity		
37-60	2Bkb	White (10YR8/1d), silty clay loam, weak coarse subangular blocky, violent effervescence many (>95%) disseminated, Stage II+ CaCO ₃ accumulation, rinds <1.5mm on bottoms of clasts, carbonate is discontinuous across the profile. West of profile this horizon "wedges" into the C horizon.
60-300	2Cox	Brown (7.5YR5/4d) cobbles and sands (<2mm to 23 cm diameter) loose, poorly sorted flowage or longitudinal gravel bar (see Lord & Kehew 1987), channel sands are 7.5YR or redder.

The type locality for the PT2 is in a gravel pit on the western valley wall near the River Road profile constructed by Boettger (1986:92) and a test well drilled by the North Dakota Water Commission (Petteyjohn 1968:275). PT2 is mapped as being associated with soils developed upon glacial outwash (Thiele et al. 1977). These soils are classified as the Renshaw, Sioux, Embden and Swenoda Series (Table 7). The representative profiles of these soils series do not ideally match the PT2 soil profile (Figure 25). However, the degree of weathering, carbonate enrichment and morainal characteristics are not specifically addressed in the SCS soil descriptions (Thiele et al. 1977).

Approximately 7.5 m (25 ft) below the PT2 is another terrace-like landform, the PT1 (Figure 24). It is also mapped as having soils developed upon glaciofluvial sediments. These soils include the Svea, Swenoda and Sioux Series (Thiele et al. 1977), and they are found on glaciofluvial sediments along the valley margins at elevations that vary from <1 to 15 m above the floodplain. The Svea soil is "weakly developed" on stratified gravels that bury till (Table 7). The Sioux soil is also "weakly developed," on outwash sand and gravel (Thiele et al. 1977) and the Swenoda soil is developed on eolian reworked sands that mantle till.

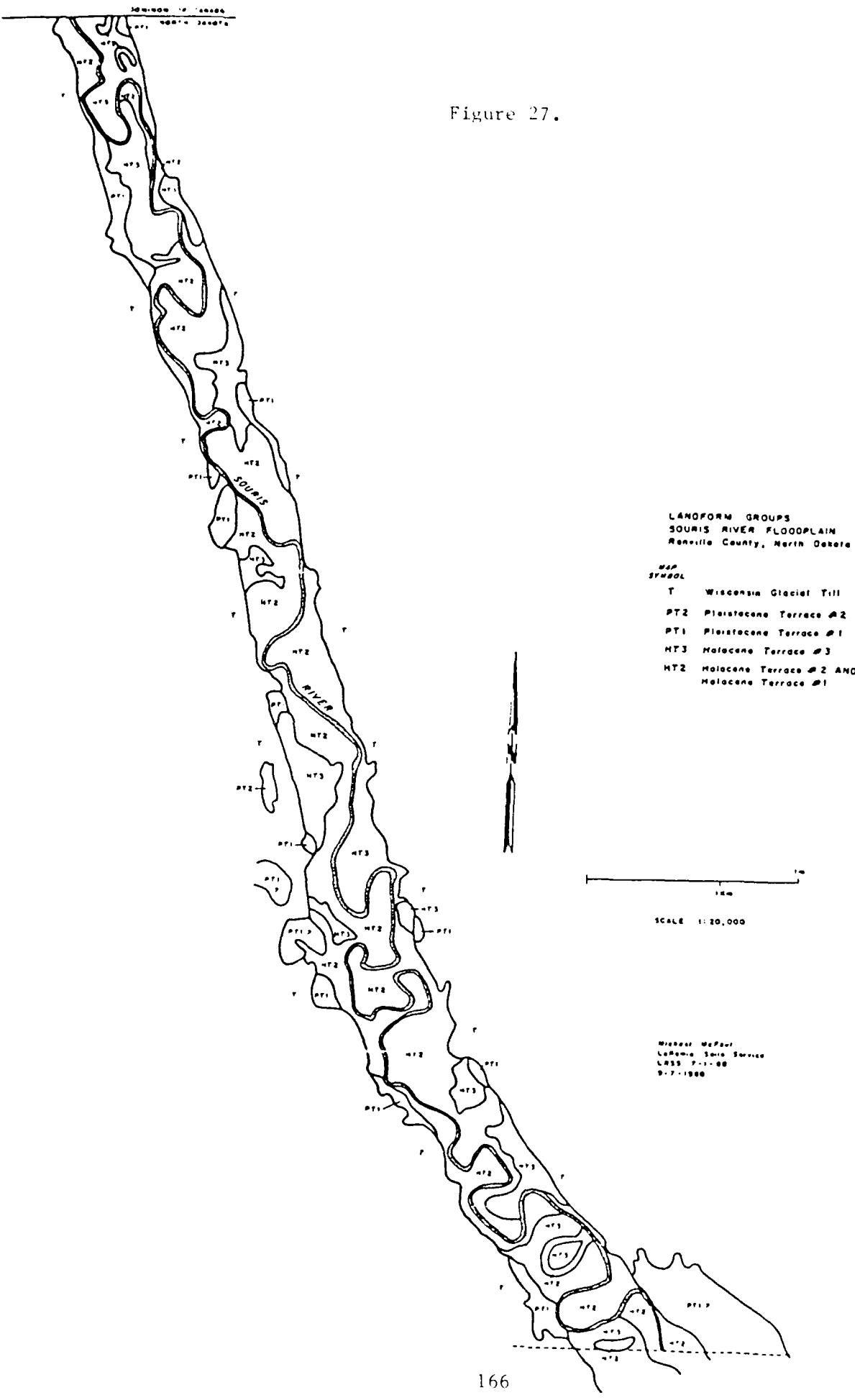
The floor of the Souris River Valley consists of three alluvial surfaces (Figure 29), and although they are subject to flooding (see Howard 1959 for terrace nomenclature), this study designates them as

Figure 26.



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Figure 27.



terraces. The highest terrace (HT3) is approximately 7m (23ft) above the river and contains three sediment units (Figure 26). These include a basal dark gray sand mantled by pale brown-grayish brown sand, and a dark grayish brown silt and silt loam textured unit. The surface soil is cumulic and mapped within the LaDelle Series (Figure 27). The upper two meters of the profile contain seven buried soil A horizons, three zones of subangular blocky soil structure and a zone of pedogenic carbonate. Below the lower zone of blocky structure is approximately 1.95 m (6.4 ft) of thinly laminated grayish brown silty and sandy alluvium. The laminated silts and sands mantle approximately 2.9 m of alternating cross-bedded and laminated "rusty" channel sands. The sands consist of very pale brown (10YR7/4) and light gray (10YR7/2) colored, fine to very fine grained, very well sorted, angular to subrounded, and predominantly quartz grains. Iron staining or "rust" is common on the grains. The "rusty" stained sands are underlain at >6.9 m (22.6 ft) by a loose calcareous sand. It is light gray (10YR7/1) when dry and dark grayish brown (2.5Y4/2) when moist. Individual grains are subrounded-subangular, well sorted, medium sized grains of predominantly clean quartz. A section of a Populus deltoides buried by cutbank slump at the approximate contact of the two sands radiocarbon dates $2,590 \pm 60$ BP (Beta 27604).

Table 9. HT3 Soil Description

<u>Depth</u>	<u>Horizon</u>	<u>Description</u>
0-5	A	dark grayish brown (2.5Y4/2d-dry) silt loam, weak medium platy structure, non effervescent.
5-23	Bw	dark grayish brown (2.5Y4/2d) silt loam, weak coarse subangular blocky structure, non effervescent.
23-31	C	Light brownish gray (2.5Y6/2d) silt loam, non effervescent.
Unconformity		
31-35	2Awb	Grayish brown (2.5Y5/2d) silt loam, weak coarse subangular blocky structure, non effervescent.
35-64	2Cwb	Light grayish brown (2.5Y6/2d) silt loam, weak coarse subangular blocky structure, non effervescent.
64-71	3Awb	Grayish brown (2.5Y5/2d) silt, weak coarse subangular blocky structure, non effervescent.
71-77	3Cwb	Light grayish brown (2.5Y6/2d) silt, weak coarse subangular blocky structure non effervescent.
77-84	4Awb	Grayish brown (2.5Y5/2d) silt loam (excellent tilth), weak coarse subangular blocky structure, non effervescent, charcoal.
84-89	4ACb	Light grayish brown (2.5Y6/2d) silt loam, moderate coarse granular structure, non effervescent.
89-93	5Ab	Grayish brown (2.5Y5/2d) silt loam, moderate coarse granular structure, non effervescent.
93-101	5Cb	Light grayish brown (2.5Y6/2d) silt loam, moderate coarse granular structure, non effervescent.

Table 9. HT3 Soil Description

Depth	Horizon	Description
101-106	6Ab	Grayish brown (2.5Y5/2d) silt loam, moderate coarse granular structure, non effervescent.
106-109	6ACb	Light grayish brown (2.5Y6/2d) silt loam, moderate coarse granular structure, non effervescent.
109-118	7Ab	Very dark grayish brown (2.5Y3/2d) silt loam, moderate coarse granular structure, non effervescent.
118-142	7Akb	Very dark grayish brown (2.5Y3/2d) silt loam, moderate coarse granular structure, strong effervescence common (15%) fine rounded soft masses of carbonate.
142-197	7Bkb	Grayish brown (2.5Y5/2d) silty clay loam, moderate very coarse subangular blocky structure, violently effervescent common (20-25%) fine rounded segregated filaments of carbonate.
Disconformity		
197-364	8Bk	Grayish brown (2.5Y5/2d) silt loam, thinly bedded and laminated some cross-bedding, violently effervescent to approximately 350 cm common fine rounded segregated carbonate filaments.
Disconformity		
364-405		Light gray (10YR7/2d) sand, cross-bedded loose well sorted subangular, very fine grained, predominantly clean quartz, trace "rusted" grains.
405-412		Grayish brown (2.5Y5/2d) silt loam, laminated.
412-506		Very pale brown (10YR7/3d) sand, cross-bedded and very thinly bedded fine grained subrounded subangular well sorted, some "rusty" grains.
506-553		Dark grayish brown (2.5Y4/2m=moist) sandy clay loam, laminated, slightly effervescent.
553-651		Very pale brown (10YR7/4d) channel sands, fine grained well sorted subrounded, very slightly effervescent, abundant "rusty" quartz.
651-670		Dark grayish brown (2.5Y4/2m) sandy clay loam, laminated, slightly effervescent.
670-694		Very pale brown (10YR7/4d) channel sands, fine grained well sorted subrounded, very slightly effervescent, abundant "rusty" sands.
Disconformity		
694-737		Light gray (10YR7/1d) sand, dark grayish brown when moist (2.5Y4/2m) loose, medium sand well sorted, subrounded-subangular "clean" quartz.

Approximately two meters below HT3 is a cut terrace (HT2). HT2 is associated with the channeled, Velva loam soil (Thiele et al. 1977) which has developed upon an alluvial, fine sandy loam similar to the HT3 "rusty" sands. Terrace HT2 is distinguished by its "irregular relief, and in some places...swales and low ridges remain (from) stream channel changes" (Thiele et al. 1977:31).

Two meters above the river is a fill terrace (HT1) inset within the channel of the Souris River. Terrace fill is characterized by numerous beds of laminated, poorly sorted, strong brown "rusty" sands and weak soil development. The HT1 fill is included within the HT2 on the landform map (Figure 29) because of the similarity in soil development (Bw horizon) and its limited occurrence. The HT1 soil (Figure 28) is developed upon 30 cm of deformed, thin lamina of cross-bedded sands that contain two types of clam shells. Below the deformed beds is a thin (<2 cm) organic rich horizon that may represent a buried soil A horizon. The organic horizon buries numerous thin to very thinly bedded accumulations of strong brown (7.5YR5/6) and grayish-brown (2/5Y5/2) colored, poorly sorted, fine-medium grained, angular-subrounded, calcareous sands. Individual sand grains are predominantly "rusty" or weathered quartz.

Table 10. HT1 Soil Description

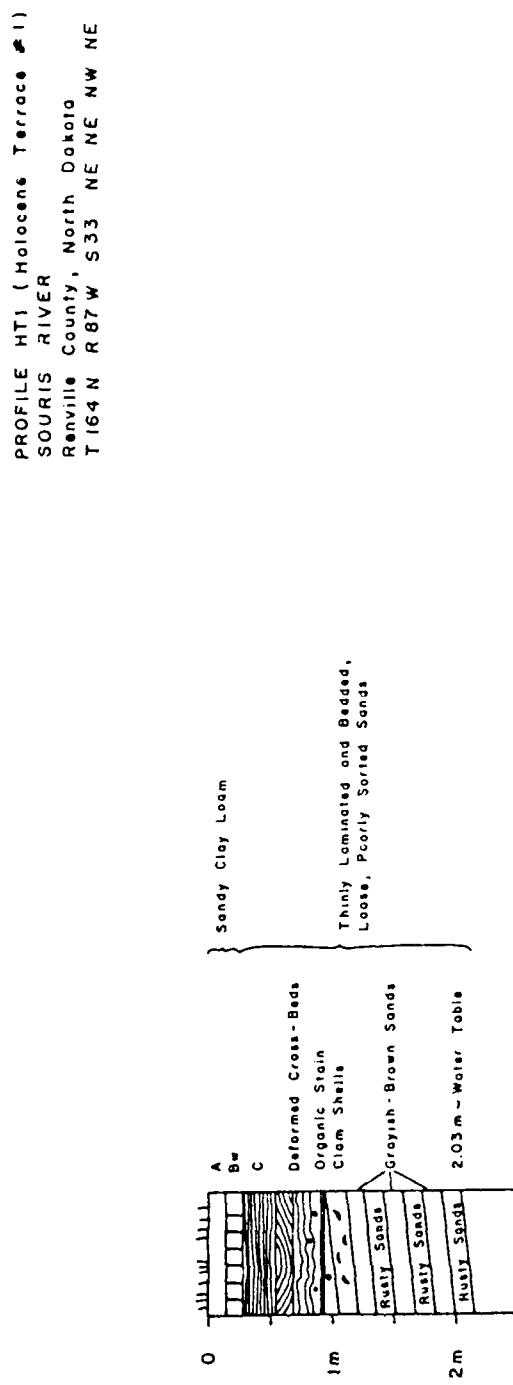
T164N R37W S33 NE NW NW NE

<u>Depth (cm)</u>	<u>Horizon</u>	<u>Description</u>
0-14	A	Grayish brown (10YR5/2d=dry) sandy clay loam, weak medium granular structure, slightly effervescent
14-27	Bw	Dark grayish brown (10YR4/2d) sandy clay loam, weak coarse-very coarse subangular blocky structure, slightly effervescent.
27-53	C	Grayish brown (2.5Y4/2d) sands, thinly laminated, loose.
53-90		Thinly laminated sands, deformed and cross-bedded, clam shells below 73 cm.
Disconformity		
90-92		Organic stain.
92-203		Strong brown (7.5YR5/6d) and grayish brown (2.5Y5/2d) sands, thinly bedded, poorly sorted, fine-medium sands, angular-subrounded abundant "rusty" quartz, calcareous.

Summary

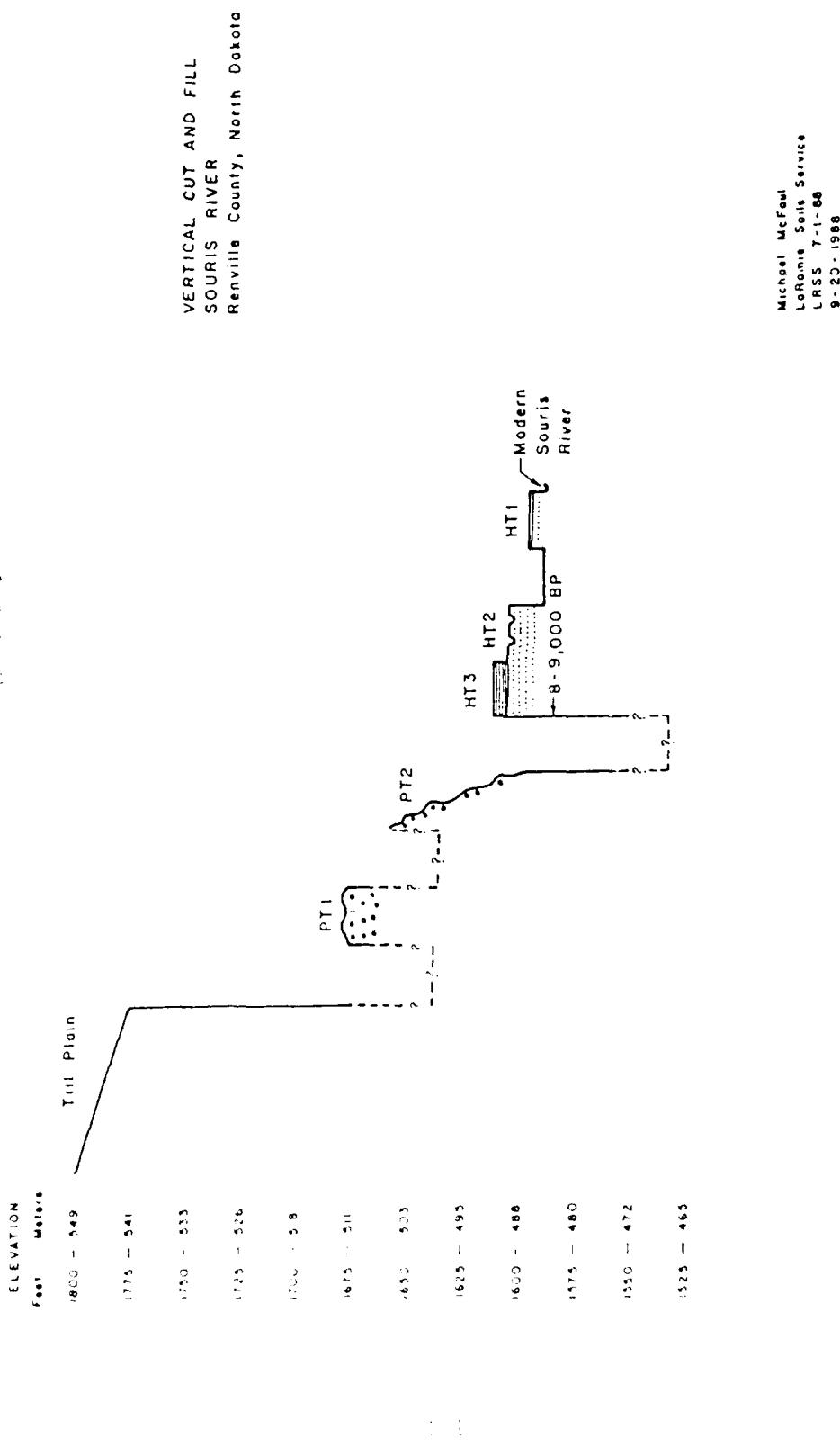
This field reconnaissance recognizes three major landform groups associated with the Souris River. These include a glacial till plain, the walls of the Souris River valley and the floodplain of the Souris River (Figure 24). The till plain is broken by accumulations of ice-marginal outwash-channel deposits and eolian reworked brown sand.

Figure 28.



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LRSS 7-1-88
6-27-1988

Figure 29.



Profiles of the valley walls are interrupted by landslide topography and two elevations of terrace remnants. The highest terrace (PT2), at approximately 511 m (1675 ft), has a Stage II+ accumulation of calcium carbonate developed on "weathered" (7.5YR) glaciofluvial gravels and channel sands. The gravels and carbonate horizons are unconformably mantled by ground moraine. Approximately 7.6 m (25 ft) below the PT2 is another glaciofluvial terrace (PT1) with an elevation that extends from <1 m to 15 m above the floodplain. Soil development (Thiele et al. 1977) and position of the terrace suggests the PT1 sediments post-date those seen on PT2.

PT1 gravels grade into and appear buried by the finer textured alluvial fill of the Souris River floodplain. The floodplain contains three alluvial terraces. The highest (HT3) is a fill terrace seven meters above the ephemeral Souris River that consists of at least three alluvial units. These units include a basal grayish sand overlain by "rusty" brown sand and grayish silt loam. The silt loam contains seven buried soil A horizons, three periods of structural soil development and a carbonate accumulation. HT3 is associated with the LaDelle soil series.

Approximately two meters below the high terrace is HT2. It is cut on HT3 sediments and identified by the channeled, Velva loam soil series. The lowest surface, HT1, is a fill terrace inset within the modern channel approximately 2 m (6.6 ft) above the river. The fill contains HT1 accumulations of poorly sorted, thinly to very thinly bedded and "rusted" or weathered quartz sands.

Interpretation

The results of this field examination suggest that the Souris River has witnessed two Pleistocene valley cutting events followed by Holocene alluviation (HT3), renewed downcutting (HT2), channel incision and channel alluviation (HT1). The Pleistocene events responsible for the excavation of the Souris River Valley (Figure 29) are recognized by terrace remnants along the margins of the valley. The terraces are assigned to glacial epochs based upon terrace morphology, clast shape, clast lithologies, and their relationship to the Pleistocene till plain. PT2 is considered to be an ancestral Souris River valley floor that pre-dates the late Wisconsin. The "weathered" (Karlstrom 1987, 1988; McFaul 1985, 1986b) appearance of the glaciofluvial gravel and the Stage II+ accumulation of pedogenic calcium carbonate (Machette 1985 after Gile et al. 1966) imply the PT2 gravels have witnessed an interglacial and suggests an early Wisconsin age (McFaul 1985) for this abandoned river floodplain. Variations of this proposal have also been forwarded by other researchers (Lenke 1960; Kehew 1982; Iord and Kehew 1987, oral communication 1988).

Truncation and burial of soil on PT2 by glacial moraine indicates a period of erosion, possibly corresponding to onset of the late Wisconsin, which occurred prior to late Wisconsin glacial ice entering the Souris River Valley. The recovery of Folsom projectile points on what is thought to be PT2 remnants by local, amateur archaeologists implies glacial ice had retreated from the area prior to Folsom time (circa 10,500 BP).

The elevation of PT1 implies that these glaciofluvial sediments post-date ice abandonment of the Souris Valley. Clayton and Moran (1982) suggest the latest Wisconsin Souris Lobe had dissipated prior to circa 11,300 BP. Kehew (1982), Kehew and Clayton (1983), Kehew and Lord (1986, 1987), Lord and Kehew (1987, oral communication 1988), and Lord (1984), suggest the creation of the PT1 was rapid and that it occurred within a "spillway" setting as part of the catastrophic drainage of glacial Lake Arcola and Lake Regina. Working in Canada, Christiansen (1979) dates Souris spillway creation at >12,500 BP. The position of non-rusted sands above "rusty" sands and till noted in a well drilled on the floodplain on the southern margin of the study area (Pettyjohn 1968:275) suggests the Souris spillway may have cut to an elevation approximately 13.1 m (43 ft) below the modern floodplain.

The formation of PT1 was followed by alluviation. A decrease in clast size indicates tractive energies and/or sediment availability had also decreased and implies a non-glacial or Holocene age for alluviation. This time frame is also indicated by a 8,640 \pm 100 BP wood fragment recovered 5.1 - 6.7m (16.7 - 22 ft) below the surface of the modern floodplain (Boettger 1986) near Profile C-C'. The position of this date implies that by 8,640 BP the Souris River floodplain had aggraded to within approximately 5-7 m (16.7-23 ft) of its HT3 height. Boettger (1986: 112-116) believes the dated wood is part of a backwater deposit which he correlates with the development of Leonard Paleosol of the Oahe Formation (see Clayton et al. 1976). The 5-7 m depth of the 8,640 BP sample (Boettger 1986) and its proximity to the project area suggests that the "clean" basal sands (Table 7) in HT3 may correspond with this period of river alluviation.

The appearance of the "rusty" or weathered grains in the alluvial unit above the basal sands indicates a change in sediment source. Similar "rusty" grains are present in the PT1 glaciofluvial deposits and in the outwash and eolian reworked sands on the till plain. Thus, the increase in "rusty" grains suggests an increase in locally derived sediment from the valley walls and the till plain. Many geomorphologists, including Hamilton (1966), Clayton et al. (1976), and Boettger (1986) in North Dakota, have proposed that a decrease in vegetative cover due to an arid climatic swing results in hillslope instability and an increase in the availability of hillslope sediment to eolian and alluvial transport. The thickness and position of the "rusty" grains in HT3 imply correlation with a dry period of hillslope instability known as the Altithermal which is dated approximately 8,500 to 4,000 BP (Boettger 1986; Clayton et al. 1976).

The 1.67 m (5.5 ft) of thinly-bedded and laminated silts that bury the "rusty" sands indicate a decrease in the availability of hillslope sediment and imply an increase in overbank alluviation. A decrease in locally derived valley wall sediment suggests an increase in vegetation possibly resulting from a moist climatic swing. Such a swing may correspond to a moist climatic event believed to have occurred (Clayton et al. 1976) at the beginning of the Medithermal (5,000-4,000 BP).

Boettger (1986:136) believes that during this time the Souris River valley became inundated by a lake formed behind Des Lacs alluvium

debouched onto the Souris floodplain. Similar ponding events upstream could have produced the increase in silty materials that are present southward in the study area and possibly the laminated overbank sediment at HT3.

Accumulation of pedogenic carbonate in the alluvial silts and loess(?) in soil 7 (Figure 26) above the thinly-bedded sands and silts suggest a return to a relatively arid climate. Clayton et al. (1976) dates an arid event approximately 4,000-3,500 BP. The sediment composition and topographic expression of the HT2 terrace suggests it may have been the active floodplain during this time.

This is also implied by the 2,590 + 60 BP (Beta 27,604) Populus deltoides limb that was buried beneath slumping sands at the base of profile HT3. The position of the limb and its age indicate that by 2,590 BP the Souris River had abandoned the HT2 level and downcut to its present position. North Dakota paleoclimatic reconstructions (Hamilton 1966; Clayton et al. 1976; Boettger 1986) suggest stream incision corresponds to moist climatic swings and a moist climatic swing is noted in the Oahe Formation (Clayton et al. 1976) circa 3,500-2,500 BP.

The poorly sorted "rusty" sands and the inset position of HT1 within the modern Souris Channel indicate a renewal of hillslope instability. The position of HT1 and its composition suggest possible correlation with a period of aridity which is believed to have occurred circa 2,500 to 1,500 BP (Clayton et al. 1976). This assumption is supported by Late Archaic-Historic cultural materials associated with the buried paleosols in the upper silts and silt loams of HT3. It is also suggested by the two zones of soil structural development which may correspond to the soil forming events noted in the Oahe Formation from 1,500 BP to present (Clayton et al. 1976).

Paleoclimatic Chronology

Interpretation of the results of this field reconnaissance suggests the following sequence of events is responsible for the creation of the Souris River landscape.

1. Early Wisconsin: glacial activity creates an ancestral Souris River channel. The floodplain is later abandoned creating an alluvial terrace (PT2).
2. Mid Wisconsin: interglacial climate initiates carbonate accumulation in the PT2 soil.
3. Late Wisconsin: "Souris Lobe" ice occupies the ancestral floodplain and mantles the PT2 glaciofluvial deposits with shallow till.
4. Latest Wisconsin (>11,300 BP): spillway flooding deepens the ancestral Souris valley. Segments of the "spillway" along the valley margins are mantled with glaciofluvial PT1 sediment.

5. Early Holocene: "clean" sandy alluvium begins filling the Souris Valley. Sandy alluvium accumulates to within approximately 5 to 7 m (16-23 ft) of the modern valley floor by circa 8,500 BP.
6. Mid-Holocene: eolian reworked and/or slope wash glaciofluvial sands from denuded valley margins are deposited on the floodplain (circa 8,500-5,000 BP).
7. Early Medithermal: silt-clay overbank alluvium and possibly lacustrine sediments bury the reworked local sands. The Souris River cut to the HT2 floodplain and occupies it from circa 5,000-3,500 BP.
8. Mid-Medithermal: the Souris abandons its HT2 floodplain and by 2,590 + 60 BP downcuts to its modern channel. "Rusty," poorly sorted HT1 hillslope sediments are deposited in the newly cut Souris channel (<2,590 BP)
9. Late Medithermal: climatic fluctuation, HT3 witnesses repeated deposition and soil formation (< Late Archaic-present).

Geoarcheological Assessment

The following geoarchaeological assessments are based upon the geomorphic-pedologic model developed during this reconnaissance. The assessments are presented by event, in geologic style (oldest to youngest) with a paleoclimatic chronology (Table 18). Please note that all glaciofluvial gravels have the potential to produce lithic resources (Ahler 1986 or Clayton et al. 1970). Since many of these locales lack the post-occupational sediment context needed to preserve and separate individual occupations, the geoarchaeological potential of these terrains is considered low.

Summary and Suggestions For Future Research

The results of this geoarchaeological reconnaissance suggest that within the study area boundaries the Souris River contains sediment accumulations that may correspond to the Oahe Formation climatic chronology. However, high rates of sediment deposition prior to 9,000 BP and from 8,500 BP to Late Archaic may have decreased the attractiveness of the floodplain to human occupation. The depth to early and middle Holocene sediment accumulations may also limit archaeological investigations to occupations buried by more recent sediment.

It is argued that future geoarchaeological activities include a dating-coring program to validate the proposed paleoclimatic chronology presented here. A major problem with this chronology is its reliance on the Oahe Formation sequence for dating control and the Oahe Formation's need for dating refinement (Clayton et al. 1976 or

Table 11. Geoarchaeological Assessment.

<u>Date Range</u>	<u>Proposed Events</u>	<u>Geoarchaeological Assessment</u>
Early Wisconsin	PT2 Glaciofluvial sediment deposited in ancestral Souris River valley.	Low potential for human occupation: Too old, the evidence lacking in North America.
Mid Wisconsin	Development of the PT2 weathering profile with Stage II+ carbonate accumulation.	Low potential for human occupation: Too old.
Late Wisconsin	Wisconsin ice buries the valley.	Low potential for human occupation: Too old.
	PT1 glaciofluvial sediment deposited in newly created "spillway" channel. Over steepening of valley walls results in landslides.	Low potential for human occupation: The "catastrophic" events associated with lake drainage would have destroyed site contexts. Also the event(s) may pre-date human occupation.
		Moderate Potential: Boettger's (1986) organic horizon suggests floodplain stability (9,000-8,000 BP). Stability may have provided a riparian environment attractive to humans. Depending upon proximity to river, alluvial burial could have preserved cultural material 'in situ'. Problem: the organic horizon is buried deeply and maybe beyond archaeological recovery.
		Early Holocene (<11,300-8,000 BP)*
		*Holocene dates after Clayton and Moran (1982), Clayton et al. (1976), Boettger (1986) and Hamilton (1966).

Table 11. Geoarchaeological Assessment (Continued).

<u>Date Range</u>	<u>Proposed Events</u>	<u>Geoarchaeological Assessment</u>
Mid Holocene (8,500-5,000?BP)	Stability: valley walls Pleistocene terraces, and till plain.	High potential: Possible lithic resources (Ahler 1986; Clayton et al. 1970) and Folsom occupations. Sites associated with soils on PT1 and PT2 that have developed on eolian or fan terrains. These provide a sedimentary environment capable of burying and preserving individual occupations 'in situ'.
	Braided stream alluviation.	Low potential: Lack of soil horizons in "rusty" sands suggests constant deposition may have hindered occupation.
	Instability: valley walls, Pleistocene terraces, and till plain.	Moderate potential: Low energy eolian and fan sedimentation can provide a depositional context capable of preserving cultural materials.
Late Holocene (5,000-4,000 BP)	Overbank valley alluviation and lake formation (?)	Low potential: The repetitive flooding witnessed in the thinly- bedded sediments in HT3 suggests flood conditions that may have precluded occupation.
		Moderate potential: Lake shorelines associated with PT1 surface and sheet wash accumulations capable of burying cultural materials.

Table 11. Geoarchaeological Assessment (Continued).

<u>Date Range</u>	<u>Proposed Events</u>	<u>Geoarchaeological Assessment</u>
	Stability: valley walls, Pleistocene terraces, and till plain.	Low potential: Depositional environment capable of preserving and separating site contexts is absent
Late Holocene (4,000-3,500 BP)	HT3 abandonment, HT2 now the floodplain.	Moderate potential: HT3 abandoned by the river and available for occupation.
3,500-2,590 ± 60 BP	HT2 abandonment: Souris incises to present elevation.	Moderate potential: HT2 now available for occupation.
	Stability: valley walls, Pleistocene terraces, and till plain.	Low potential: Depositional environment capable of preserving and separating site contexts is absent.
Middle Late Holocene (2,500- 1,500 BP)	Alluviation: deposition of HT1 fill. Possible eolian deposition.	High potential: Silt (possible eolian) deposition on HT3 and HT2 possible, provides sediment needed to separate and preserve occupations.
	Hillslope instability eolian deposition.	High potential: Level terrains capable of accepting eolian and fan sediments. Low potential: Slope erosion destructive to site contexts.

Table 11. Gearchaeological Assessment (Continued).

<u>Date Range</u>	<u>Proposed Events</u>	<u>Gearchaeological Assessment</u>
Latest Holocene (1,500–recent)	Floodplain: climatic vacillation results in alluviation soil forming events.	High potential: Known Late Archaic and younger materials buried by fine grained alluvium on HT3.
		Moderate potential: HT2 and HT1 both areas available to occupation, but the less frequently flooded HT3 may have been more attractive.
	Vacillating stability/ instability: Pleistocene terraces, valley walls and floodplain.	Low potential: thin sediment deposition may not be capable of separating cultural occupations.

Benedict's 1987 review of Ahler 1986). Minimally, a dating program should attempt to bracket the major periods of sedimentation seen in the Holocene terraces. A coring program could also refine the relationships between the surface soils and their underlying sediments.

Future archaeological investigations are asked to consider the PT1 surfaces along the flanks of the floodplain. These surfaces could have provided stability and lithic resources (Ahler 1986; Clayton et al. 1970) to inhabitants during Holocene floodplain aggradation. Accumulation locales associated with the reworked sands on the PT1 may be especially attractive due to their ability to separate and preserve cultural material in situ. Finally, it is suggested the Late Archaic to present soil-sediment-human relationship seen in HT3 be examined carefully. It may be possible to establish soil productivity, environmental carrying capacities and trace micro-climatic events from the Late Archaic.

CONCLUSIONS AND RECOMMENDATIONS

The Class III cultural inventory of approximately 3000 acres of the Upper Souris River proposed flood control project identified a total of 39 cultural resource sites. The recorded prehistoric sites include nine lithic scatter sites, seven ceramic bearing sites, and three buried sites. The historic sites recorded consist of three historic scatters, fifteen architectural sites, and one historic dugout site. In addition, one previously recorded site (32RV438) was revisited. Nineteen of the recorded sites within the survey area do not appear to be significant under any of the criteria of eligibility for nomination to the National Register of Historic Places, and no further work or consideration of these sites as historic properties is recommended (Table 9).

One site (32RV438), is recommended to be significant under Criteria C (1) as a site which embodies the distinctive characteristics of a type, period, or method of construction, and therefore is considered to be eligible for nomination to the National Register of Historic Places. Definition of potential project impacts to the site and appropriate protection or mitigation of the site through HABS/HAER level recording are recommended.

Nineteen of the sites identified during the survey are of undetermined eligibility for nomination to the National Register of Historic Places. All nineteen of these sites are prehistoric sites for which insufficient information is available from the analysis of the surface collected materials to determine if these sites have yielded or are likely to yield information important to prehistory or history (eligibility Criterion D for nomination to the National Register of Historic Places). Further work is needed at these sites to obtain this information because there is a likelihood that the majority of these sites contain subsurface components.

The project area is located in the Souris River floodplain, which is considered to be an environment which is conducive to the building of depositional soils. The history of deposition is currently being investigated on the Rafferty and Alameda Dam projects in Canada. Finnigan (1988) has stated that the depositional environment in that portion of the Souris River has yielded information which indicates that one meter of soil has been deposited in the floodplain for every one thousand year period. In other words, early occupations of the Souris River valley may be buried under as much as two to eight meters of soil. The geomorphological study of the current project area for this report supports Finnigan's supposition. The geomorphology of this area indicates that the depositional regime of this portion of the Souris River valley is conducive for the existence of buried cultural sites in up to 14 m (45 ft) of soil, with the sites ranging in date from the beginning of the Holocene to the historic era.

Three of the sites recorded in the present study demonstrate the subsurface potential for identifying undisturbed components. These sites (32RV231, 32RV237, and 32RV209) are exposed in cutbanks along the river and lie under 50 cm to 225 cm of apparently sterile deposition. Each of these sites is likely to contain undisturbed cultural deposits.

Table 12
Upper Souris River Valley Sites

<u>Site #</u>	<u>Site Type</u>	<u>Recommendation</u>	<u>Status</u>
32RV201	Lithic Scatter	Ineligible	No Further Work
32RV202	Lithic Scatter	Undetermined	Testing Needed
32RV203	Lithic Scatter	Undetermined	Testing Needed
32RV204	Lithic Scatter	Undetermined	Testing Needed
32RV205	Ceramic Scatter	Undetermined	Testing Needed
32RV206	Ceramic Scatter	Undetermined	Testing Needed
32RV207	Lithic Scatter	Undetermined	Testing Needed
32RV208	Lithic Scatter	Undetermined	Testing Needed
32RV209	Buried CM Scatter	Undetermined	Testing Needed
32RV210	Lithic Scatter	Undetermined	Testing Needed
32RV211	Recent Bridge	Ineligible	No Further Work
32RV212	Ceramic Scatter	Undetermined	Testing Needed
32RV213	Ceramic Scatter	Undetermined	Testing Needed
32RV214	Abandoned Farmstead	Ineligible	No Further Work
32RV215	Occupied Farmstead	Ineligible	No Further Work
32RV216	Abandoned Farmstead	Ineligible	No Further Work
32RV217	Occupied Farmstead	Ineligible	No Further Work
32RV218	Abandoned Farmstead	Ineligible	No Further Work
32RV219	Abandoned Farmstead	Ineligible	No Further Work
32RV220	Recent Bridge	Ineligible	No Further Work
32RV221	Abandoned Farmstead	Ineligible	No Further Work
32RV222	Abandoned Farmstead	Ineligible	No Further Work
32RV223	Abandoned Farmstead	Ineligible	No Further Work
32RV224	Abandoned Farmstead	Ineligible	No Further Work
32RV225	Abandoned Farmstead	Ineligible	No Further Work
32RV226	Occupied Farmstead	Ineligible	No Further Work
32RV227	Abandoned Farmstead	Ineligible	No Further Work
32RV228	Historic Dugouts	Ineligible	No Further Work
32RV229	Ceramic Scatter	Undetermined	Testing Needed
32RV230	Ceramic Scatter	Undetermined	Testing Needed
32RV231	Buried Bone Midden	Undetermined	Testing Needed
32RV232	Lithic Scatter	Undetermined	Testing Needed
32RV233	Lithic Scatter	Undetermined	Testing Needed
32RV234	Historic Scatter	Ineligible	No Further Work
32RV235	Historic Scatter	Ineligible	No Further Work
32RV236	Ceramic Scatter	Undetermined	Testing Needed
32RV237	Buried Hearth	Undetermined	Testing Needed
32RV238	Historic Scatter	Ineligible	No Further Work
32RV438	Historic Icehouse	Eligible	No Further Work
Subtotals: 19 Prehistoric Sites		Eligible Sites:	1
20 Historic Sites		Ineligible Sites	19
Total: 39 Sites		Undetermined Sites:	19
		Total:	39

In addition, Floodman and Friedman (1986) demonstrated the subsurface potential of sites in the Souris River valley to yield information important to prehistory. Six of the twenty-one sites which were test excavated during 1983 and 1984 were determined to be significant under National Register criteria of eligibility.

Subsurface testing of the sites demonstrated that there were intact buried components which yielded information in terms of establishing the cultural history of this area and toward determining the functional role of the site in the archaeological continuum.

Therefore, it is recommended that Phase II test excavations be performed at all nineteen prehistoric sites recorded in the present survey, to obtain the data necessary to establish the eligibility of these sites to the National Register of Historic Places under Criterion D.

Recommendations for Further Work

Controlled surface collection should be undertaken on all the exposed site surfaces because significant disturbance is occurring at each site as a result of agricultural activities. The sites should be laid out in numbered 20 m grid units. All artifacts within each unit should be collected. This method is employed to obtain information about sites which would be lost due to local collecting and site disturbance. This technique can be used to gain information about tool assemblages, lithic reduction practices, subsistence practices, and site function.

All of the prehistoric sites should be formally tested for the reasons and purposes set out above. Three different techniques are generally used in testing for the scientific significance of a site: auger probing, shovel probing, and formal excavation of test units. All three have their benefits and limitations as techniques. Auger probing allows the researcher to quickly determine the depth of cultural deposition and can help to define the areal extent of a site. The problem with this technique is that auger probes are of such a limited size that it is possible to miss the cultural horizons of a site even if the auger probes are systematically bored throughout the site. The small bore sizes also do not allow the researcher to adequately examine the stratigraphic context of a site. Construction of soil profiles deeper than about 30 cm is almost impossible within the limited confines of bore holes.

Shovel probing, like auger probing, is beneficial in helping the researcher to establish the areal extent of the site and to determine its cultural deposition. The drawbacks of shovel probes are that it is difficult to excavate a 25x25 cm or 50x50 cm shovel test to depths greater than 1 meter, and the chance of missing cultural horizons is large because of the limited size of the shovel probes.

Formal test excavation units are considered to be the best of the three techniques. This technique allows the researcher to carefully excavate a portion of the site according to stratigraphic context. In this manner the researcher may obtain a complete cultural history of the site based on artifacts recovered and possibly the use of absolute

dating. This technique also allows the researcher to chart the depositional horizons through soil profiles and to examine the amount of disturbance which has occurred at a site. Because a majority of the sites to be tested are found in cultivated fields, the significance of latter point needs to be clarified. The recovery of materials from the stratigraphic levels of the test excavation units allows the researcher to analyze these materials in terms of site function and how it may have changed through time. It also allows the researcher to examine the intrasite variability and to discover whether different functions were occurring in different site areas. The use of the formal test unit technique allows the researchers to definitely demonstrate the scientific significance or non-significance of the site; it further provides information sufficient to construct appropriate plans for mitigation of effects of the proposed project, if such mitigation is necessary.

The recommended testing of the nineteen sites identified during the current project should be based on the areal extent of each site. There are a variety of different techniques which can be employed for determining the proper positioning of the test excavation units (Joukowsky 1980). The one suggested here is based on the location of distinct surface artifact concentrations. Each site will have a minimum of two test units placed within locales on the basis of where significant artifact concentrations occur. One of the units should be placed within a high density artifact concentration and one unit should be placed within a low density artifact area. By using this method the test units will reveal the extent of the buried cultural materials in areas which can be compared and contrasted to one another. This method should be used to test the sixteen surface manifested prehistoric sites. The researcher should be able to establish the significance of each site on the basis of materials and information gathered from the test units. Hypotheses concerning site function, cultural history, and environmental deposition can be generated.

Because of the depositional regime suggested by the deeply buried sites identified during the current project, the test excavation units should be 1x2 m in size. Any size unit less than this would be too difficult to excavate to depths over one meter. Also, with the larger size units, soil profiles will be easier to map and interpret. All units should be excavated in arbitrary 10 cm levels. All test units should be excavated to at least 20 cm below the recognized deepest cultural zone. After excavation is completed, two soil cores should be driven to at least 1 m below the excavation unit floor. The soil cores should be located in opposite corners of the test units. Through color and texture, the soil core samples should indicate whether subsurface conditions exist which are likely to contain cultural materials. A contour map will be made of each site and will include the excavation units and areas of high artifact concentrations.

The three buried sites, 32RV209, 32RV231, and 32RV237, should have both horizontal and vertical test units. One unit should be excavated horizontally into the face of the river exposure at each site. A clean, flat profile should be prepared on the face of the exposure in which a test unit will be placed. Horizontal test units should be excavated from the ground surface to at least 20 cm below the deepest

cultural zone. At least 10 soil cores will be excavated at 10 m intervals along a line perpendicular to the exposure face to determine the site boundaries.

If the soil cores indicate the site may extend more than 20 m from the exposure face, a second test unit should be excavated along the line of soil cores and near the indicated edge of the site opposite the exposure face. The second test unit should be excavated to no more than 2 m below the ground surface because of crew safety and efficiency considerations, and two soil cores should be driven in opposite corners to at least an additional 1 m below excavation unit floor.

In addition to test excavating these sites, it is further recommended that, given the previous archaeological investigations which have been undertaken in both the United States and Canada, a joint international cultural resource management plan be established for the future investigations of the Souris River basin. The U.S.-Canadian border is an arbitrary boundary which was frequently crossed by past cultural groups, and it would serve the archaeology of this region to establish joint research questions between the U.S. and Canada which could be investigated through generated hypotheses about such issues as culture history, subsistence systems through time, human ecology, regional settlement patterning over time, zoo-archaeology, adaptive transformation of humans to Pleistocene and Holocene environments, and many other areas of multistage research.

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A CLASS III CULTURAL RESOURCE INVENTORY OF A PORTION OF THE
UPPER SOURIS RIVER VALLEY, NORTH DAKOTA

APPENDIX B

Conducted for
St. Paul District
U. S. Army
Corps of Engineers
St. Paul, Minnesota

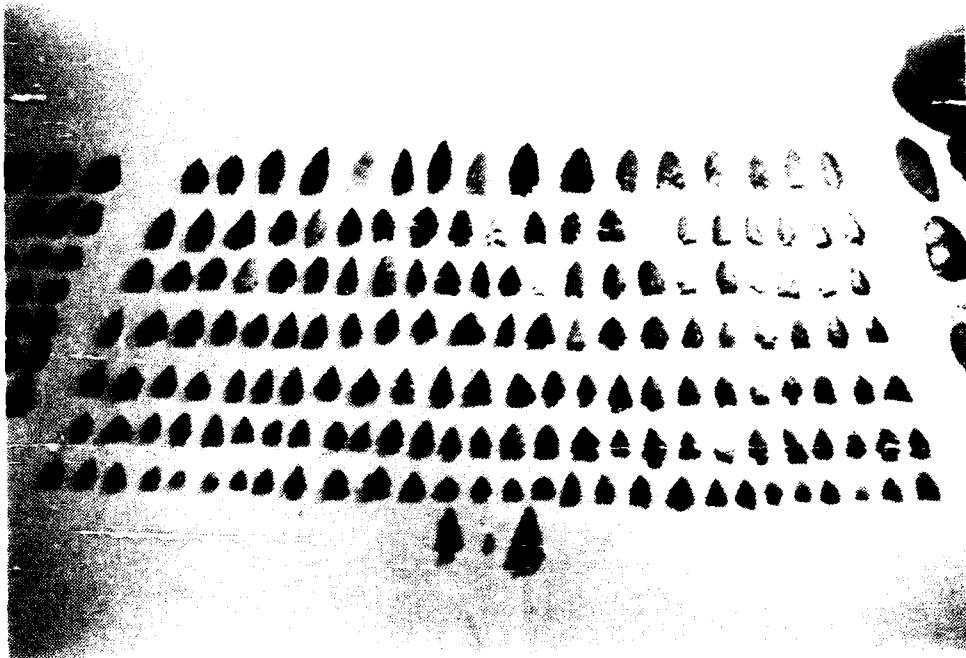
Conducted By
Cultural Research & Management, Inc.
Bismarck, North Dakota

Richard Persinger
Principal Investigator

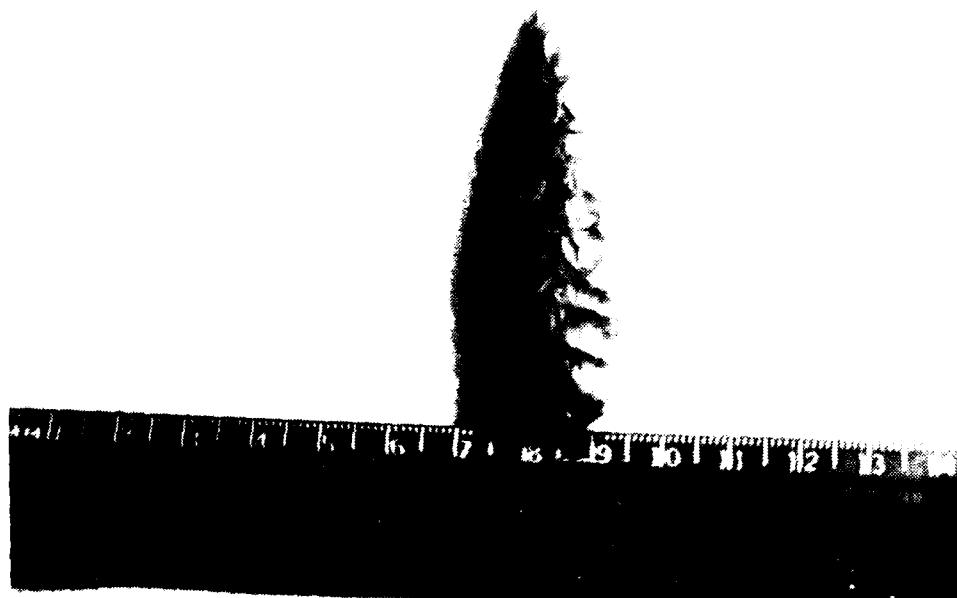
Report Authors
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Richard Persinger
Michael McFaul

March, 1989

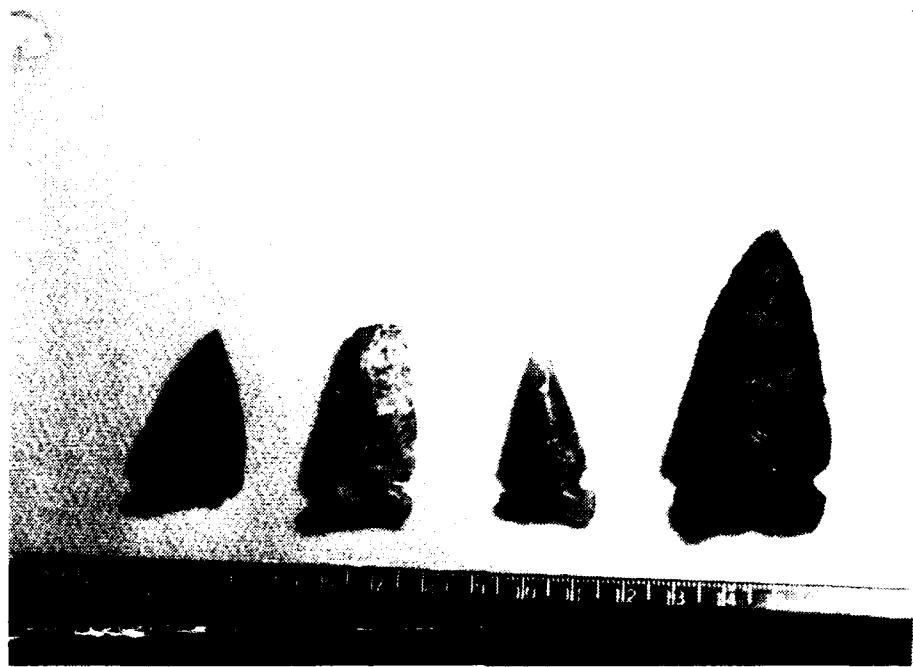
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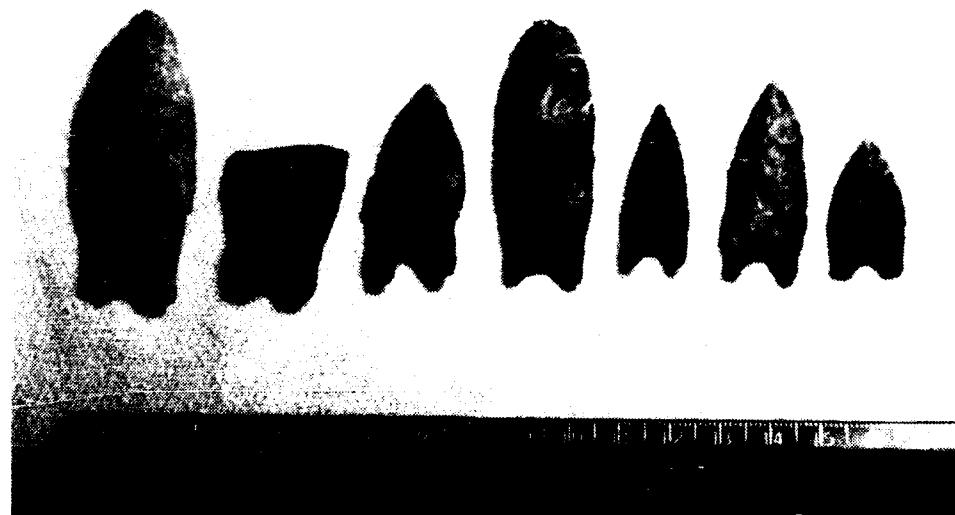
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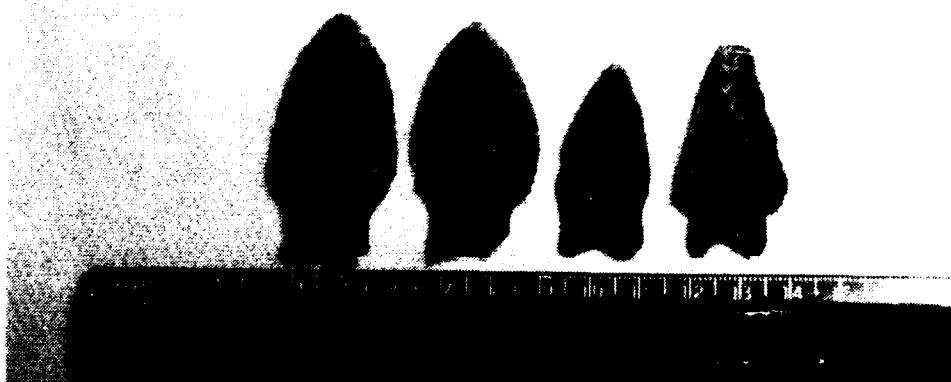
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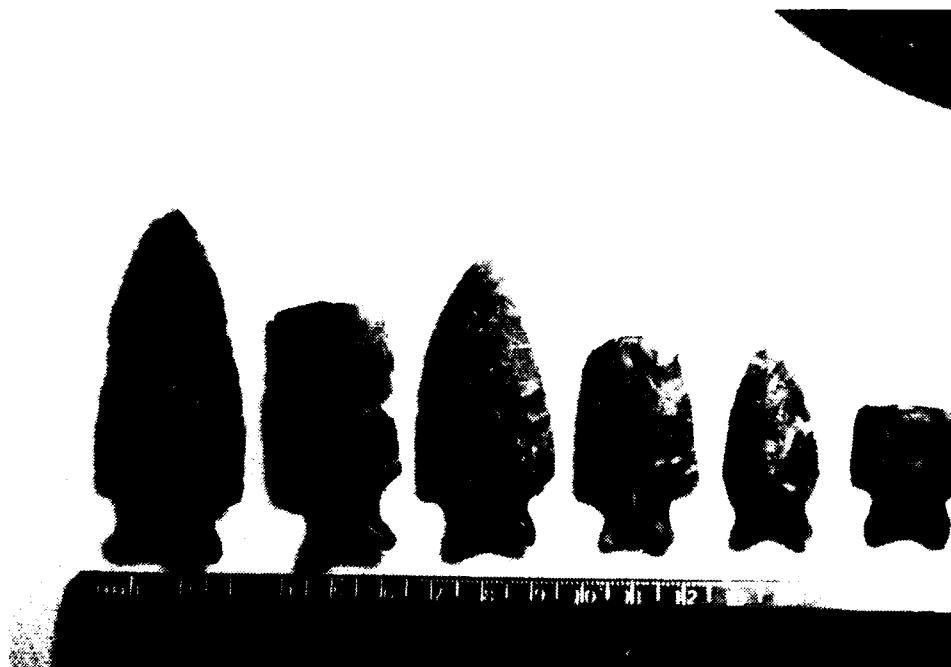
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Early Archaic Period -



Emmel Collection - McKean Lancelot Type Prehistoric Points -
Middle Archaic Period -



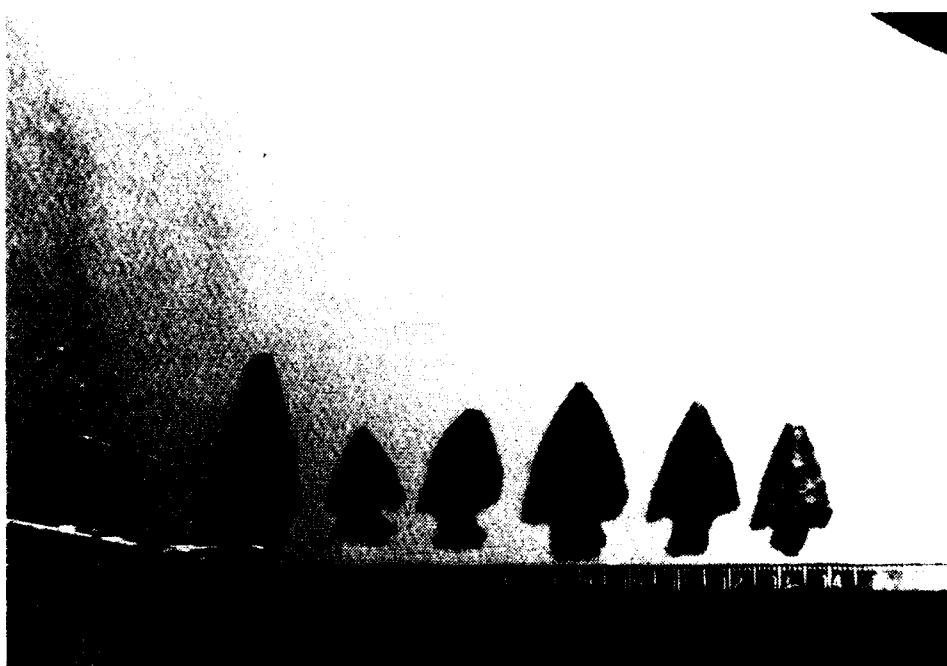
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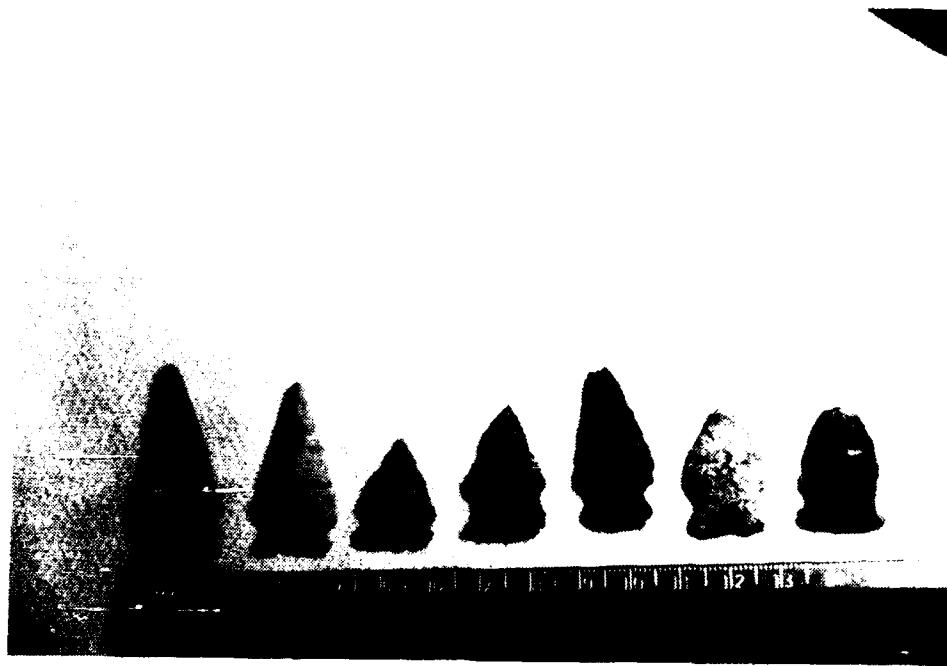
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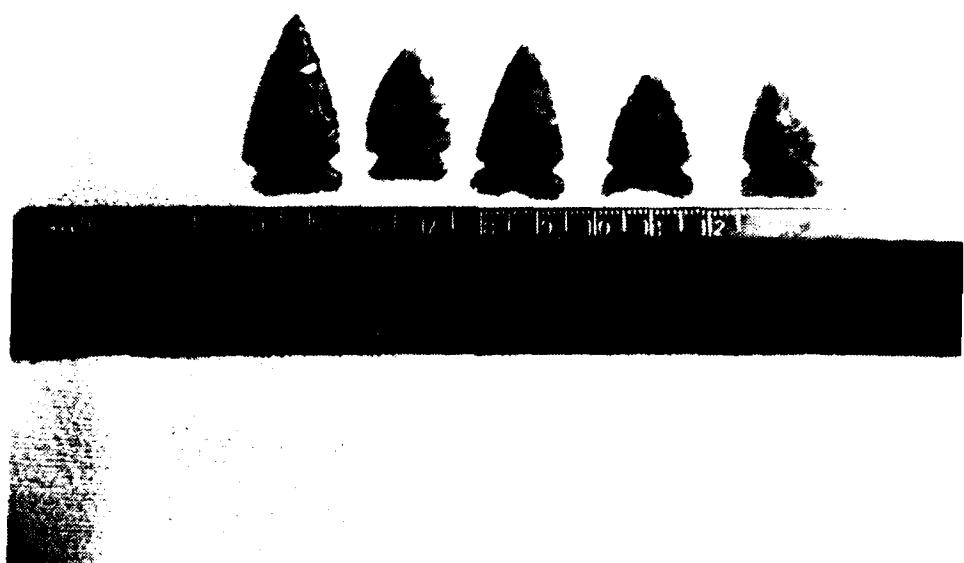
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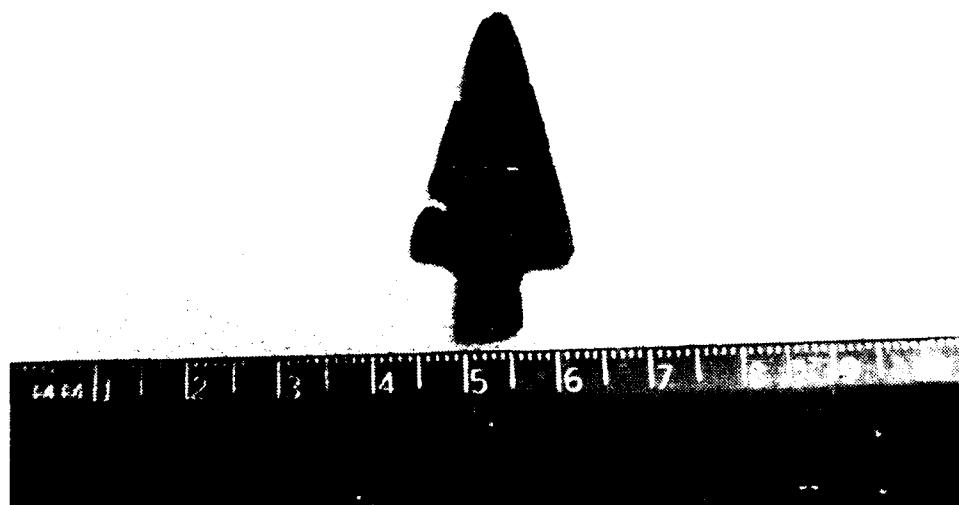
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Late Archaic/Middle Woodland Period -



Emmel Collection - Besant Projectile Points -
Middle Woodland Period -



Emmel Collection - Avonlea Like Projectile Points -
Middle Woodland Period -



Emmel Collection - Metal Projectile Point -
Proto-Historic or Historic Period -



Emmel Collection - Oxbow & Ovate Like Projectile Point -

A CLASS III CULTURAL RESOURCE INVENTORY OF A PORTION OF THE
UPPER SOURIS RIVER VALLEY, NORTH DAKOTA

APPENDIX C

Conducted for
St. Paul District
U. S. Army
Corps of Engineers
St. Paul, Minnesota

Conducted By
Cultural Research & Management, Inc.
Bismarck, North Dakota

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March, 1989

Contract Number: DACW37-88-M0705

SCOPE OF WORK
PHASE I CULTURAL RESOURCES SURVEY
OF THE SOURIS RIVER FROM LAKE DARLING
TO THE CANADIAN BORDER

1.00 INTRODUCTION

1.01 The Contractor will undertake a Phase I cultural resources survey of the Souris River from north of Lake Darling to the Canadian border.

1.02 This survey partially fulfills the obligations of the Corps of Engineers (Corps) regarding cultural resources, as set forth in the National Historic Preservation Act of 1966 (Public Law [PL] 89-665), as amended; the National Environmental Policy Act of 1969 (PL 91-190); Executive Order (EO) 11593 for the "Protection and Enhancement of the Cultural Environment" (Federal Register, May 13, 1971); the Archaeological and Historical Preservation Act of 1974 (PL 93-291); the Advisory Council on Historic Preservation "Regulations for the Protection of Historic and Cultural Properties" (36 CFR, Part 800); and the applicable Corps regulations (ER 1105-2-50).

1.03 The laws listed above establish the importance of Federal leadership, through the various responsible agencies, in locating and preserving cultural resources within project areas. Specific steps to comply with these laws, particularly as directed in PL 93-291 and EO 11593, are being taken by the Corps "... to assure that Federal plans and programs contribute to the preservation and enhancement of non-federally owned sites, structures, and objects of historical, architectural, or archaeological significance." A part of that responsibility is to locate, inventory, and nominate to the Secretary of the Interior all such sites in the project area that appear to qualify for listing on the National Register of Historic Places.

1.04 EO 11593 and the 1980 amendments to the National Historic Preservation Act further direct Federal agencies "... to assure that any federally owned property that might qualify for nomination is not inadvertently transferred, sold, demolished or substantially altered." In addition, the Corps is directed to administer its policies, plans, and programs so that federally and non-federally owned sites, structures, and objects of historical, architectural, or archaeological significance are preserved and maintained for the inspiration and benefit of the people.

1.05 This cultural resources survey will serve several functions. The report will be a planning tool to aid the Corps in meeting its obligations to preserve and protect our cultural heritage. It will be a comprehensive, scholarly document that not only fulfills federally mandated legal requirements but also serves as a scientific reference for future professional studies. It will identify resources that may require additional investigations. Thus, the report must be analytical, not just descriptive.

2.00 PROJECT DESCRIPTION

2.01 The authorized Souris River Basin project is a flood control project for urban and rural reaches of the Souris River in North Dakota. The project involves flood control features in both the United States and Saskatchewan, Canada.

2.02 Features in Canada include the construction of two reservoirs for flood storage, the Alameda and Rafferty reservoirs, and the operation of a diversion between the Rafferty reservoir and the United States/Canadian border.

2.03 Features in the United States include modification of the gates outlet structure at the existing Lake Darling Dam; mitigation of project-related impacts to U.S. Fish & Wildlife Service lands; mitigation of project-related impacts to farmsteads upstream and downstream of Lake Darling; and a water control plan for the safe release of water downstream. The overall project also includes flood control levees at Velva, North Dakota, and the channel modification at Minot. Construction of these last two project features has already been completed.

2.04 The purchase and operation of flood storage in Saskatchewan is a joint effort between Canada and the United States. When construction is completed in 1991, the project will provide water supply and flood control benefits to the Province of Saskatchewan, provide 100-year flood protection to the city of Minot, North Dakota, and significantly reduce flood damages along the main stem of the Souris River in North Dakota.

2.05 Cultural resources surveys have been conducted for the majority of the project features discussed above. In addition, Saskatchewan has conducted cultural resources investigations of the proposed Alameda and Rafferty reservoirs in Canada.

2.06 In 1982, a cultural resources survey was undertaken by Powers Elevation under contract with the St. Paul District to identify sites that may be affected by a raise of Lake Darling. (That proposed raise of Lake Darling is no longer a project feature.) An area along the Souris River from Dam 41 to Section 36, T163N, R87W was included in the survey. This survey area covered a land area that would equal about a 6000 cfs discharge from the Canadian reservoirs.

2.07 The area to be included in this survey is from Section 36, T163N, R87W to the Canadian Border, approximately 7.5 linear miles. Although the river only needs to handle a discharge of 4000 cfs under the present project, a land area large enough to pass 6000 cfs is included under this survey contract so as to allow some consistency in data collection along the entire length of the Souris River affected by the project. A map of the area included in the survey is attached.

3.00 DEFINITIONS

3.01 Cultural Resources include any building, site, district, structure, object, data, or other material relating to the history, architecture, archaeology, or culture of an area.

3.02 A Phase I Cultural Resources Survey is an intensive, on-the-ground investigation of an area sufficient to determine the number and extent of the resources present and their relationships to project features. It will provide (1) data adequate to assess the general nature of the sites present; (2) recommendations for additional testing of those resources that may provide important cultural and scientific information; and (3) detailed time and cost estimates for Phase II testing.

3.03 Phase II Testing is the intensive testing of a resource that may provide important cultural or scientific information. This testing will result in (1) information adequate to determine whether the resource is eligible for inclusion on the National Register of Historic Places; (2) a Phase III mitigation plan for any eligible resources that will undergo a direct or indirect impact; and (3) detailed time and cost estimates for the mitigation.

3.04 Phase III Mitigation is the mitigation of the direct or indirect impacts of construction upon eligible sites through the systematic removal of data. It typically includes the excavation of either complete cultural deposits or a systematic sample of them and the thorough analysis and interpretation of the data recovered. The excavation, analysis, and interpretation methods must be adequate to address the important research questions upon which the resource was determined eligible. In addition, because the mitigation process destroys the resource, data should be collected to address future research questions.

4.00 SURVEY SPECIFICATIONS

4.01 The Contractor will conduct a Phase I cultural resources survey of the Souris River from north of Lake Darling to the Canadian border in accordance with Sections 2.07 and 3.02 above.

5.00 PERFORMANCE SPECIFICATIONS

5.01 The Contractor's work will be subject to the supervision, review, and approval of the Contracting Officer's representative.

5.02 The Contractor will employ a systematic, interdisciplinary approach in conducting the study, using techniques and methods that represent the current state of knowledge for the appropriate disciplines. The Contractor will provide specialized knowledge and skills as needed, including expertise in archaeology and other social and natural sciences.

5.03 The Contractor will provide all materials and equipment necessary to perform the required services expeditiously.

the contract number; the name of the author(s) and/or Principal Investigator; the signature of the Principal Investigator; and the agency for which the report is being prepared.

b. Management summary: This section will provide a concise summary of the study, containing all the information needed for management of the project. This information will include the reason the work was undertaken, who the sponsor was, a brief summary of the scope of work and budget, a summary of the field work and lab analysis, the limitations of the study, the results, the significance of the results, recommendations for further work, and the repository for records and artifacts.

c. Table of contents

d. List of figures

e. List of plates

f. Introduction: This section will identify the sponsors (Corps of Engineers) and their reason for the study and present an overview of the study with each site located on USES quad maps. It will also define the location and boundaries of the study area (using regional and area-specific maps); define the study area within its regional cultural and environmental context; reference the scope of work; identify the institution that did the work and the number of people and person-days/hours involved; give the dates when the various phases of the work were completed; identify the repository of records and artifacts; and provide a brief outline of the report and an overview of its major goals.

g. Previous archaeological and historical studies: This section will concisely summarize and evaluate previous archaeological and historical research in the study area including the researchers, dates, extent, adequacy, and results of past work and any cultural/behavioral inferences derived from it.

h. Environmental background: This section will concisely describe the current and prehistoric environment of the study area, including its geology, vegetation, fauna, climate, topography, physiography, and soils. The relationship of the environmental setting to the area's prehistory and history should be stressed. The level of detail in this section will be commensurate with that of the other report sections.

i. Theoretical and methodological overview: This section will state the goals of the sponsor and the researcher, the theoretical and methodological orientation of the study, and the research strategies that were applied to achieve the goals.

j. Field methods: This section will describe all field methods, techniques, and strategies and the reasons for using them. It will also describe field conditions, relevant topographic/physiographic features, vegetation conditions, soil types, stratigraphy, general survey results, and the reasons for eliminating any uninvestigated areas.

k. Laboratory and analysis methods: This section will explain the laboratory methods employed and the reasons for selecting them. It will reference accession or catalog numbers of any collections, photographs, or field notes obtained during the study and state where these materials are permanently housed. It will also describe and justify the specific analytical methods used, including any quantitative analysis of the data, and discuss limitations or problems with the analysis.

l. Results: This section will describe the cultural resources found during the study. It will minimally include each site's description (including size, depth, and artifact density); its location (USGS quad, legal description, elevation, and address if appropriate); the amounts and types of remains recovered; its environmental setting; its current condition; the direct and indirect impacts of the project upon it; and any additional interpretations (e.g., site type, cultural components, and human behavioral information).

m. Evaluation and conclusions: This section will formulate conclusions about the location, size, condition, and distribution of the resources found; their relationships to other sites in the area; and their possible importance in terms of local and regional prehistory, protohistory, and history. It will also relate the results of the study to the stated goals; identify any changes in the goals; assess the reliability of the analysis; and discuss the potential of and goals for future research.

n. Recommendations: This section will recommend any further work deemed necessary. It will summarize the Phase II evaluation measures needed to determine whether specific resources are eligible for the National Register of Historic Places, as well as a time and cost estimate for this work. It will also describe any areas that were inaccessible, and recommend future treatment of them. If the Contractor concludes that no further work is needed at any site, the evidence and reasoning supporting this recommendation will be presented.

o. References: This section will provide bibliographic references (in American Antiquity format) for every publication cited in the report. References not cited in the report may be listed in a separate "Additional References" section.

p. Appendix: This section will include the Scope of Work, resumes of project personnel, copies of all correspondence relating to the study, and any other pertinent information referenced in the text. It will also include State site forms for all sites identified during the survey, including find spots and previously recorded sites.

q. Figures: The location of all sites and other features discussed in the text will be shown on a legibly photocopied USGS map bound into the report. In addition, the locations of all subsurface tests will be indicated on maps of appropriate scale and detail and keyed to the subsurface testing forms included with the field notes. Other figures and/or tables should also be used as appropriate.

5.04 The Contractor's survey will be an on-the-ground examination sufficient to determine the number and extent of any cultural resources present, including standing structures as well as prehistoric and historic archaeological sites.

5.05 Field methodologies and techniques will be coordinated with the Contracting Officer's representative prior to the commencement of field work. The requirements listed in this scope of work are to be considered the minimal professional standards acceptance to the Government in the conduct of field survey. Any deviation from these standards must be adequately justified and described in the Contractor's report. Inadequate justification may require you to return to the field to meet minimal standards.

5.06 The Contractor's survey will include surface inspection in areas where surface visibility is adequate to reveal any cultural materials that are present and subsurface testing in all areas where surface visibility is inadequate. Subsurface investigation will include shovel testing, coring, soil borings, cut bank profiling, or other appropriate methods.

5.07 The survey interval required for pedestrian survey and subsurface testing is 15 meters (50 feet). However, this interval may vary depending upon field conditions, site density, or size. If a larger interval is used, this decision must be justified in the Contractor's report.

5.08 The Contractor will screen all subsurface tests through 1/4-inch mesh hardware cloth.

5.09 The Contractor will recommend any Phase II testing measures that are warranted, including time and cost estimates.

5.10 The Contractor will return all subsurface test areas as closely as practical to pre-test conditions.

5.11 If it becomes necessary in the performance of the work and services, the Contractor will, at no cost to the Government, secure the rights of ingress and egress on properties not owned or controlled by the Government. The Contractor will secure the consent of the owner, or the owner's representative or agent, in writing prior to effecting entry on such property. If requested, a letter of introduction signed by the District Engineer can be provided to explain the project purposes and request the cooperation of landowners. Where a landowner denies permission for survey, the Contractor must immediately notify the Contracting Officer's representative and must describe the extent of the property to be excluded from the survey.

5.12 The Contractor must keep standard records that include field notes and maps, site survey forms, subsurface testing forms, and photographs.

5.13 State site forms will be prepared for all sites discovered during the survey, and records on previously reported sites will be updated. Data should be included on the present condition of each site and on the

contents and locations of any collections from it. The Contractor will also submit all site forms and updates to the appropriate State agency.

5.14 Cultural materials and associated records from the study should be curated at an institution that can ensure their preservation and make them available for research and public view. Curation should be within the State and as close as possible to the project area. The Contractor will be responsible for making curatorial arrangements, coordinating them with the appropriate officials of North Dakota, and obtaining approval from the Contracting Officer's representative.

5.15 When sites are not wholly contained within the survey area of this contract, the Contractor will include an area outside the survey area large enough to include the entire site. This shall be done to delineate the site boundaries and to adequately assess the degree to which the site may be impacted.

6.00 GENERAL REPORT REQUIREMENTS

6.01 The Contractor will submit the following documents, described in this section and Section 7.00: a field report, field notes, a draft contract report, and a final contract report.

6.02 The Contractor's field report will be a brief summary of the nature, extent, and results of the field work conducted. It may be in the form of a letter to the Contracting Officer's representative.

6.03 The Contractor's field notes will include legible copies of important notes and records kept during the investigation. Especially important are the daily field journal of the Principal Investigator or field director, field site survey forms, and subsurface testing forms. One copy of these notes should be submitted to the Contracting Officer's representative with the draft contract report but should not be bound into the report.

6.04 The draft contract report will detail the approach, methods, and results of the investigation, and make recommendations for further work. It will be submitted to the Contracting Officer's representative, who will review it and forward it to other appropriate agencies for review. Comments will be returned to the Contractor, who will make the required revisions and submit the final contract report.

6.05 The Contractor's draft and final reports will include the following sections as appropriate to the study. The length of each section depends on the level of detail required of the study and the amount of information available. The reports should be as concise as possible, yet provide all the information needed for evaluating and managing the project and for future reference.

a. Title page: The title page will provide the following information: the type of study; the types of cultural resources assessed (archaeological, historical, and architectural); the project name and location (county and State); the date of the report; the Contractor's name;

6.06 A cover letter submitted with the final contract report will include the project budget.

6.07 The Contractor will submit to the Contracting Officer's representative the negatives for all photographs that appear in the final report.

7.00 REPORT FORMATS

7.01 There are no specific format requirements for the field report. A letter report is usually sufficient.

7.02 There are no format requirements for the field notes; however, they must be legible. If the original handwritten notes are illegible, they will be typed.

7.03 Formats for both the draft and final contract reports are as follows:

a. The Contractor will present information in whatever textual, tabular, or graphic forms are most effective for communicating it.

b. The draft and final reports will be divided into easily discernible chapters, with appropriate page separations and headings.

c. The report text will be typed, single-spaced (the draft report should be space-and-one-half or double-spaced), on good quality bond paper, 8.5 inches by 11.0 inches, with 1.5-inch binding and bottom margins and 1-inch top and outer margins, and may be printed on both sides of the paper. All pages will be numbered consecutively, including plates, figures, tables, and appendixes.

d. All illustrations and photographs must be clear, legible, self-explanatory, and of sufficiently high quality to be reproduced easily by standard xerographic equipment, and will have margins as defined above. All maps must be labeled with a caption/description, a north arrow, a scale bar, township and range, map size and dates, and map source (e.g., the USGS quad name or published source). It is preferred that original photographs be used rather than xerox prints to insure quality.

8.00 MATERIALS PROVIDED

8.01 The Contracting Officer's representative will furnish the Contractor with access to any publications, records, maps, or photographs that are on file at the St. Paul District headquarters that are appropriate to the study being undertaken.

9.00 SUBMITTALS

9.01 The field work completion date for this project will be _____. The Contractor will contact the Contracting Officer's representative at least 7 days before the field work begins to discuss the work schedule and plans.

9.02 The Contractor will submit reports according to the following schedules:

a. Field report: A brief letter report summarizing the field work and its results will be submitted to the Corps of Engineers within 10 working days of the completion of field work.

b. Draft contract report: Seven copies of the draft contract report will be submitted no later than 60 days after completion of the field work. The draft contract report will be reviewed by the Corps of Engineers, the State Historic Preservation Officer, the National Park Service, and other professionals as selected by the Corps of Engineers. The draft contract report will be submitted according to the report and contract specifications outlined in this scope of work.

c. Project field notes: One legible copy of all the project field notes will be submitted with the draft contract report.

d. Final contract report: The original and 15 copies of the final report will be submitted 60 days after the Contractor receives the Corps of Engineers comments on the draft report. The final report will incorporate all the comments made on the draft report.

10.00 CONDITIONS

10.01 Failure of the Contractor to fulfill the requirements of this Scope of Work will result in rejection of the Contractor's report and/or termination of the contract.

10.02 Neither the Contractor nor his representative shall release any sketch, photograph, report, or other materials of any nature obtained or prepared under the contract without specific written approval of the Contracting Officer's representative prior to the acceptance of the final report by the Government.

10.03 Site locations and other site and contract information will not be released to the public or any other agency or entity without specific permission of the Contracting Officer's representative.

10.04 All materials, documents, collections, notes, forms, maps, etc., that have been produced or acquired in any manner for use in the completion of this contract shall be made available to the Contracting Officer's representative upon request.

10.05 Principal investigators will be responsible for the validity of material presented in their reports. In the event of controversy or court challenge, the principal investigator(s) will be placed under separate contract to testify on behalf of the Government in support of the findings presented in their reports.

10.06 The Contractor will be responsible for adhering to all State laws and procedures regarding the treatment and disposition of human skeletal

remains. If human remains are encountered, the Contracting Officer's representative will be immediately contacted. In addition, the remains not be placed on public display.

11.00 METHOD OF PAYMENT

11.01 The Contractor will make periodic requests for payment based on the amount of work completed on the contract. A 10-percent retained percentage may be withheld from each partial payment. Final payment, including any retained percentage, will be made to the Contractor upon approval of the final report by the Contracting Officer's representative.

CULTURAL RESEARCH & MANAGEMENT, INC.

Historical Consultants

615MARCH OFFICE P.O. BOX 2154
BISMARCK, ND 58502
(701) 258-1215

Terry Heide
Corps of Engineers
1421 USPO & Custom House
180 E. Kellogg Blvd.
St. Paul, MN 55101-1479

RE: AMENDMENT TO DACW37-88-M-1479 FOR GEOMORPHOLOGY STUDY

Dear Ms. Heide:

We have completed field survey for the project referenced above, which is the upper seven miles of the Souris River Valley in North Dakota. During our survey we discovered three deeply buried prehistoric archaeological sites which had no manifestations at the ground surfaces, and we did not discover any sites through auger and shovel probing of areas which appeared to have high potential to contain prehistoric sites. The results of our auger and shovel probing were similar to results of previous cultural resource investigations on the upper Souris, in that few sites have been found in that manner. The discovery of deeply buried sites in river cut-banks raises serious questions about the chronology of prehistoric human occupation of the project area and about the effectiveness of surface examination and limited probing for identifying potentially significant archaeological sites which could be effected by the proposed project. In particular, the discovery of the deeply buried sites raises a question of disparity: surveys upstream in Canada have resulted in discovery of numerous buried sites (Finnegan 1986), while previous surveys on the Souris River in North Dakota have resulted in discovery of only one buried site (Floodman, Friedman and Schweigert 1985).

The Scope of Work for our contract requires that we provide data adequate to assess the general nature of the sites present, and that we provide recommendations for additional testing of those resources that may provide important cultural and scientific information (SOW 3.02). It also requires that the draft final report will describe the prehistoric environment of the study area, including topography, physiography, and soils (SOW 6.05.h). Analysis and preliminary evaluation of the deeply-buried sites will require geomorphological study of the landforms and depositional sequences which resulted in the buried condition of the sites. Geomorphological investigation is also necessary to address the relative stratigraphic location of other sites, the potential for as yet unknown deeply buried sites, and the processes of erosion and deflation which may effect the potential of any of the sites to yield information important in prehistory. None of the previous cultural resource investigations in the Souris Valley in Canada or the United States have included geomorphological field examinations or assessments.

The need for geomorphological study was not recognized at the beginning of the present survey, and it became apparent only with the discovery of the deeply buried sites. The project budget does not include provisions

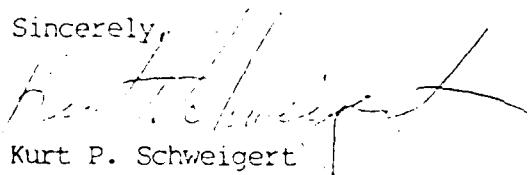
for the necessary geomorphology. We therefore request an amendment to our existing contract which will provide an additional \$6,318.00 for geomorphic-logical study. This additional amount is itemized below and in the attached proposal of LaPierre Soil Service, which would serve as a subcontractor for the additional work.

Subcontract: LaPierre Soil Service	5,228.00
Labor: Archaeologist, 40 Hrs @\$18.00	720.00
Fer Diem: 4 Days @\$40.00	160.00
Mileage: 600 Miles @\$.35	<u>210.00</u>
Total:	6,318.00

The work under this amendment would be performed during the period of our existing contract, and we do not request an extension of time for delivery of our draft final report.

Please call me if you have questions about the above proposal.

Sincerely,



Kurt P. Schweigert
Vice President

LaRamie Soils Service

P.O. Box 255
Laramie, WY 82070



307-742-4185

SOURIS RIVER GEOARCHAEOLOGICAL INVENTORY

TECHNICAL AND COST PROPOSAL

Prepared By

MICHAEL MCFAUL

LARAMIE SOILS SERVICE

7-4-88

ADDITIONAL INFORMATION:
MICHAEL MCFAUL 307-742-4185

Geoarchaeology • Geomorphology • Pedology

INTRODUCTION

This proposal contains LaRamie Soils Service's (LRSS) approach to the geoarcheological inventory of a segment of the Souris River, Renville County, North Dakota. Methodology is developed from procedures employed by LRSS in three similar geoarcheological inventories in the Dakotas (McFaul 1988, 1987, in review). However, the focus of this investigation is refined due to the smaller scale of the inventory. The smaller scale permits a closer examination of the soil-sediment-environmental record contained in the study areas' Pleistocene-Holocene Cole Harbor and Oahe Formations (Clayton et al. 1980). The soil-sediment records contained in these formations, together with the cultural and radiocarbon dating produced by the archeological investigation will be used to evaluate the geoarcheological potential of terrains in the study area. Specifically, this assessment will address the potential of individual terrains to contain cultural material, the age(s) of the potential occupations, site disturbance by geologic and pedologic processes and the paleoenvironmental conditions influencing site occupation/preservation.

METHODOLOGY

The inventory will follow procedures developed by LRSS for geoarcheological inventories in western North Dakota (McFaul 1988) and in the Missouri Trench in South Dakota (McFaul 1987; in review). The investigative approach is deductive:

- 1) similar soil-sediment-terrains are grouped and mapped using available geologic, geomorphic and pedologic data (Clayton et al. 1976; Clayton et al. 1980; Patterson 1968; Omodt 1968; Clayton and Freers 1967; Fenneman 1939; SCS 1951),
- 2) representative soil-sediment columns are described (SCS 1951; Birkeland 1984; Krumbein and Sloss 1963). Were possible every effort will be made to coordinate the placement of the representative columns with buried cultural horizons especially those with datable materials.
- 3) an interpretation the soil-sediment record (Birkeland 1984) in its regional context (McFaul 1985, 1986; Clayton and Moran 1982; Clayton et al. 1976; Clayton and Freers 1967) is made, and
- 4) these interpretations provide the foundation for the geoarchaeological assessment of the terrains (McFaul and Latady 1988) in the Souris River. The assessments will attempt;
 - a) to determine the age(s) and cultural significance of the terrains from the soil-sediment record (McFaul 1985; 1988),
 - b) to assess the effect of burial (eolian, lacusterine, alluvial) upon the cultural record (McFaul 1987, in review),
 - c) to estimate site extent by the presence or absence of stratigraphic and pedologic markers (McFaul in review; also see Birkeland [1984] and his review of R.B. Morrison),
 - d) to gauge the probability of cultural occupation based upon environmental factors (McFaul 1987, in review) and lithic resources (McFaul 1988), and
 - e) to employ the paleoclimatic history in understanding the cultural desirability (McFaul in review) of the landform units through time.

For example: the Aggie Brown Member of the Oahe Formation is well noted for its dark, organic stained (McFaul 1987) Leonard paleosol (Bickley 1972). This soil is easily recognizable in the field within the Oahe sequence is present (McFaul 1987) and it is thought to date early Holocene (Calyton et al. 1976).

Recognition of this paleosol provides an approximate date for cultural material buried within its sediments. At its type locality (Riverdale, North Dakota) the Leonard is developed upon eolian silt. The deposition of eolian silts is relatively gentle in comparison to other depositional environments such as landslides (McFaul and Latady 1988). "Gentle" burial implies the context of cultural material buried by loess will be relatively well preserved. However, the organic staining also suggests a humid environment which suggests segments of the Leonard are terrain may have been unattractive because they were swampy. Although other geoarcheological interpretations can be made from the Leonard paleosol, these represent how soil-sediment are used to define geoarchaeological potentials.

Finally, this investigation hopes to address two regional geoarchaeologic/geomorphic questions. LRSS will attempt to develop a chronology for the retreat/ablation of the glacial ice, known as the Souris Lobe (Clayton and Moran 1982), from the study area and its corresponding availability to Holocene occupations. LRSS will also attempt to address the major criticism (see Benedict's [1988] review of Ahler 1986) of the Oahe Formation sequence (Clayton et al. 1976) which is reliable date bracketing of the individual members. This will be addressed through the use of cultural dating, however radiocarbon dating, thermoluminescence dating of loess and/or phytoliths will also be considered as necessary.

NOTE: This short proposal outline presents the overall methodology and strategy for this investigation. Specific inquiries should be addressed to Michael McFaul, LaRamie Soils Service (307-742-4185).

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LaRamie Soils Service

P.O. Box 255
Laramie, WY 82070



307-742-4185

LARAMIE SOILS SERVICE RESUME

LaRamie Soils Service is a soil-sediment analysis firm (Duns #17-497-3602) specializing in field and laboratory geoarchaeological investigations. The firm's soil-sediment laboratory and office are headquartered in 240 m² of office space at 209 Grand Avenue, Suites 408 and 409 in Laramie, Wyoming (Telex 3798708 Great Deal). Since its establishment in 1980, by Michael McFaul a Certified Professional Soil Scientist (#2607), the firm has conducted 200+ small and large scale geoarchaeological investigations throughout the Great Plains and Rocky Mountains of North America.

The firm primarily operates as a subcontractor to numerous archaeological-environmental consultants. In this capacity LRSS has conducted field and laboratory analyses for many of the largest landholders in the United States of America. A list of these landholders includes the Bureau of Land Management, Corps of Engineers, Department of Agriculture-Forest Service, Pittsburgh and Midway Coal Company, State of Wyoming, Union Pacific Railroad and the United States Army. Currently LRSS is pursuing expanding its operations internationally scale and hopes to enter Brazil and the Peoples Republic of China in the late 1980s or early 1990s.

The company maintains a strong relationship with other academic professionals. During 1987, LRSS employed three academic geoarchaeologists and three support professionals. Access to these professionals plus specialized laboratories and libraries allows LRSS to produce custom geoarchaeological investigations designed to meet job-specific technical and manpower requirements.

LaRamie Soils Service's commitment to geoarchaeological and paleoenvironmental research is evidenced by its active participation in numerous scientific societies including the Soil Science Society of America, Society for American Archaeology, Plains Anthropological Society, American Quaternary Society, Center for the Study of Early Man, Friends of the Pleistocene and the Geological Society of America. Published verification of this commitment can be found in Current Research in the Pleistocene (M. McFaul, volumes 2-5).

Inquires are welcomed. Please address them to Michael McFaul.